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Land Manager's Handbook on Minerals Development

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

LAND MANAGER'S HANDBOOK ON MINERALS DEVELOPMENT

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FOREST SERVICE

LAND MANAGER'S HANDBOOK ON MINERALS DEVELOPMENT

LAND MANAGER'S HANDBOOK ON MINERALS MANAGEMENT

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PREFACE

The handbook is designed to assist Forest Supervisors, District Rangers and their staffs with the job of managing large scale minerals developments. Its goals are to provide a general perspective on the surface management job when large mineral developments are involved, although much of the operational guidance material applies to all levels of minerals activities, large and small. It is a general introduction for the land manager, not a guide for the minerals specialists.

Minerals management can become a very complex process. This short handbook provides a basic frame of reference and directs the reader to appropriate sources to answer detailed questions, whether it be the Forest Service Manual, staff specialists, or industry.

Chapter 100, A Perspective on Minerals Management, is a narrative that is meant to be read as a whole. It presents the nature of the minerals management job in broad outline, showing the basic elements of the surface protection, reclamation, planning and regulatory roles played by the Forest Service land managers in minerals area management.

Chapter 200, Operational Guidance for Minerals Area Management, is a more of a reference section to help in particular operational settings. It provides the whole picture of events leading to a minerals operation, and includes charts that identify the Forest Service's role in relation to the operator and to the other Federal agencies involved in minerals developments.

Several key themes are found in these two chapters;

Basis of Forest Service Authority

The authority to influence the course of events in minerals developments derives from several different legal sources, rooted in some very basic doctrines of American law. The precise role that can be played by the Forest Service in minerals area management is better understood within the context of these legal doctrines. Concepts of split surface and minerals estates, public domain and

acquired lands, Federal and private mineral disposal systems, all affect the Forest Service's role as a land manager and interagency influence.

Communication

The land manager must coordinate the work of many specialists and communicate with a wide range of agencies and the public. It is vital that he be aware of the rights and duties of the Forest Service, the operator, and other interested parties in the minerals activity. The public needs to be more aware that the Forest Service plays a limited role in most mineral development activities.

New Tools for Doing the Job

Impacts from minerals operations are more manageable today, because new legal and administrative tools are available, and because industry and the public see them as manageable. For example, the revision of Title 2800 of the Forest Service Manual has clarified the administrative and field roles of minerals management. The Land and Resource Management Planning regulations provide a well-conceived structure for dealing with the interrelationships among minerals activities and other forest resources. Also, numerous reclamation research publications and a set of user guides have been developed under the Surface Environment and Mining (SEAM) program. Some valuable guides have been prepared by Regional offices, such as the Oil and Gas Guidelines by Region I.

Commodity Specific Approach to Minerals Management

There are advantages to the legal specialist's use of the three categories of locatables, leasables and salables to try to organize information about minerals. It is helpful to the land manager, however, to look at the reasons why a commodity is put into one legal category or another, because minerals can move across categories depending on the situation. The important thing is understanding how to get to the legal definition of a mineral commodity, and why a particular approach is required under the

law to the management of a given commodity. This handbook integrates the legal categories into a commodity by commodity approach, because the land manager on the ground has to deal with a specific commodity at a particular site that is being developed by an individual company. The most practical blueprint for guiding the management process is not a set of legal categories, but a commodity flow chart drawn up by the local land manager, whose own plan captures the unique timing, surface effect and reclamation needs of a particular minerals operation.

Guidance Through the Multiagency Regulatory Process

By means of the figures and supporting text of this handbook, the land manager will be given an overview of the regulatory processes as they relate to the development of mineral deposits. The Forest Service role is portrayed in conjunction with the roles of other agencies and the operator. This side by side presentation helps each party understand what the other parties are doing. It also gives support to timely communication and coordination of efforts.

Regional Impacts of Large Scale Developments

Large scale minerals developments can suddenly bring thousands of new people into previously sparsely populated areas. Sometimes the "boomtown" effects create more pressing problems for the Forest than the surface disturbances from the minerals operation! These boomtowns can be many miles outside of the Forest and still create management concerns because of intensified recreational demands or transportation corridors affecting the Forest. Dealing with these concerns calls for skillful management and effective coordination among the many Federal and State agencies involved with social growth management.

LAND MANAGER'S HANDBOOK ON MINERALS MANAGEMENT

CHAPTER 100

A PERSPECTIVE ON MINERALS MANAGEMENT

101 - INTRODUCTION TO THE MINERALS MANAGEMENT JOB

The involvement of the Forest Service in large scale minerals developments has expanded in recent years. At the same time regulations pertaining to the surface effects of the minerals developments have increased in number and complexity. This chapter provides an overview of the management and regulatory responsibilities of land managers in the Forest Service.

Managing the Surface

The Forest Service's primary function in the Federal administration system is to manage renewable surface resources on National Forest System (NFS) lands. Its relationship to non-renewable underground resources development takes shape from that original surface management responsibility. The authority of the land manager comes first from the statutes and agency regulations that define the roles and duties of each agency and the operators. Even though the Forest Service has no direct responsibility for producing minerals, it has the authority to influence the process considerably.

It is not just statutory authority that gives influence. Equally important in many practical situations is the informally recognized knowledge and management ability of the Forest Service land manager. With that recognized competence, the influence of the formal powers is enhanced.

This point is particularly significant to the Forest Service manager involved with minerals development, since in most instances the Forest Service manages surface resources without having jurisdiction over subsurface development. Many situations will exist where the law only allows the Forest Service to offer recommendations

about how minerals development will proceed. These situations are described in detail in Chapter 200. Although the Forest Service does not have final "go" or "no-go" authority of many minerals developments, land managers should recognize that their recommendations will carry weight when operators and the public know that they are knowledgeable about the technical and administrative aspects of minerals development. This handbook, then, emphasizes both the professional management of information and communication, and formal regulatory actions. The wide respect earned by the Forest Service over the years has resulted largely from the competence of the Forest Service as a land management agency.

New Definitions of the Minerals Management Job

Recent Federal legislation related to minerals, implemented by the Forest Service land management planning regulations, have important implications for the minerals management job. For example, under the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), land productivity, or capability, is assessed and updated regularly. The assessment will produce a Program Direction every 5 years that will guide the planning process. The 1980 RPA Report contains these Policy Questions on Minerals:

> What action should the Forest Service take to facilitate exploration and development of energy and nonenergy minerals on National Forest Systems land? What should be the role of the Forest Service in research and development to protect, restore, and rehabilitate lands disturbed by surface mining activities?

The Federal Land Policy and Management Act of 1976 (FLPMA) established new procedures for withdrawing land from mineral entry; this includes reports on geology and on past and potential mining activities.

The National Forest Management Act (NFMA), passed in 1976 as an amendment to the RPA of 1974, mandated the development of a planning system. This statute led to the Land and Resource Management Planning (LRMP)

regulations published in 1979. Minerals information is an integral part of the planning system. This information includes the effects of renewable resource allocations on minerals resources, as well as the effects of minerals developments on other resources in the planning area. The LRMP regulations, in conjunction with the National Environmental Policy Act final regulations issued in 1978, provide significant protection for environmental values. In sum, the land manager of the 1980s works with new tools aimed at both minimizing impacts and expediting production of mineral resources.

Challenges to the Land Manager

A large proportion of minerals management time will be spent on small operations and low intensity exploration work. Large scale minerals operations, however, present unique challenges because they require the help of a broad spectrum of specialists, involve many agencies and types of jurisdictions, and frequently require such complex planning. Large minerals projects require contributions from a wider spectrum of professionals than are usually involved in renewable resources management.

Land managers dealing with minerals developments must organize and direct personnel with very diverse scientific backgrounds. Also involved in developing long range plans are the mining company specialists who actually do the reclamation planning and field work. The Forest Service manager will apply the best of the Service's experience and research to particular projects. This means keeping the pipeline open to the publications of the Research Stations and to professional journals. It also requires good communication among the surface managing agencies. Section 103 (p. 10) discusses this process in more detail.

To do this job well, the land manager should know what the various specialists can contribute to the total project and when their contributions are most timely. Geologists will deal with the mineral and its setting

within the earth. Mining or petroleum engineers will deal with extraction mechanics, and processing equipment and facilities. Foresters, hydrologists, soil scientists, landscape architects and biologists will work with each of the above to help plan for the desired post-mining uses. Meantime, social scientists contribute to solutions to the impacts on people caused by rapid influxes of large workforces, and help the land manager anticipate changing demands on forest resources by population changes.

Specialized knowledge is communicated among the staff specialists, with the mineral operator, and also into the Forest planning process. The Forest plan incorporates the required documentation for the stipulations attached to the offical consent to or recommendation on minerals exploration and development plans. To defend these stipulations before the public and in court, the land manager must be able to trace them through the decision-making record and the criteria used in the planning process. The plan must show how the stipulations are used to attain reasonable land management objectives. Thus, the land manager must insure that the Forest plan includes appropriate minerals information, whether or not a minerals project is currently active. (See the Mineral Planning Handbook.) The possibility of minerals development during the life of the plan is an essential consideration in any long-term view of the Forest resource uses.

There will always be a possibility of surprise by mineral discoveries. But, the knowledge that can be obtained from mineralized formations and from past exploration and mining activities should not be underestimated. A Forest plan should always reflect the most accurate forecast about potential minerals occurance, explorations, and development, in order to reduce conflicts with other Forest resource uses. While forecasting draws on the physical sciences of geology, engineering and extraction technology, it also draws on mineral economics, including analysis of international supply and demand,

and of transportation factors. The important questions are: Where are minerals located? Are they in demand? When will they be economically minable? and How will they be transported? The minerals manager brings these questions into the process of formulating a Forest plan for multi-resource development and protection.

Manageability of Impacts

The impacts of minerals operations on other Forest resources have become subject to much more thorough review and more extensive mitigation practices.

In the past, land managers often lacked the authority to adequately protect surface resources and to reclaim the land. Mineral operations were frequently a preemptive use of the land, hindering other uses. However, more recent legal and administrative standards have been developed that, coupled with the power of public opinion and better management practices by the minerals industries, help the land manager to plan for compatible multiple land uses. Now an emphasis can be placed on returning mined lands to other productive uses.

More and more the mineral industry is demonstrating its willingness and ability to cooperate with well-conceived plans for protecting surface resources from permanent harm. Indeed, the nation is learning that its lands are not infinite and that some renewable resources are in short supply. Technological advances have improved mining and reclamation practices. Planning procedures have been established to help mitigate impacts and to direct mineral related facilities toward supporting other forest uses. In sum, the surface manager should regard mining as compatible with other uses of National Forest System lands.

102 - REGIONAL IMPLICATIONS OF LARGE SCALE MINERALS DEVELOPMENTS

Large Population Changes Alter Demands on the Forest

Large scale minerals developments not only have site specific surface impacts that concern the land manager, but also bring about new social and economic situations in the region around the development. Substantial changes in demands on Forest resources can be created by projects and community growth located many miles away from the Forest as well as those projects in the Forest. Not only can these new demands sharply affect particular program areas such as recreation, they increase the whole volume of business and staff workload in the Forest. The increased levels of activity that are indirectly caused by large mineral projects are as important in the land management job as direct surface impacts.

It appears that the majority of these indirect impacts are associated with population growth. This indicates that the land manager can keep ahead of demands on the Forest by keeping informed about all the influences on population growth in his area. The single large new development is the most prominent way for such growth to occur, but three other types of change should not be overlooked. Sometimes large mineral operations close down suddenly, requiring different directions in Forest management. Existing and familiar operations can undergo major expansions. Finally, numerous small new developments, expansions or reductions can in the aggregate have a large effect on the Forest.

When anticipating large new workforces and the secondary service populations necessary to accommodate them, the land manager needs to be sensitive to the polarization that often can develop between the oldtimers and the newcomers. Such social conflict is not explained by attributing bad attitudes to people. There are very real, objective difference in wage levels, buying power, lifestyle and recreation preferences between heretofore agrarian communities and the new industrialized workforces. Any

type of decision making -- city, county or Forest Service -- is difficult in the midst of changing and conflicting social demands.

Predictability of New Demands on the Forest

In many cases, the timing of regional population changes can be known in advance of the actual arrival of project workforces. Also, the composition of the workforce in terms of age, income, family size, recreation preferences, etc., is generally predictable. Sociologists have identified differences between short-term construction and long-term operational groups. Companies can project probable workforce sizes, and the transitions from construction to operation crews. The land manager can acquire this information long before construction begins, allowing plans to be adjusted in, say, recreational programs for the Forest.

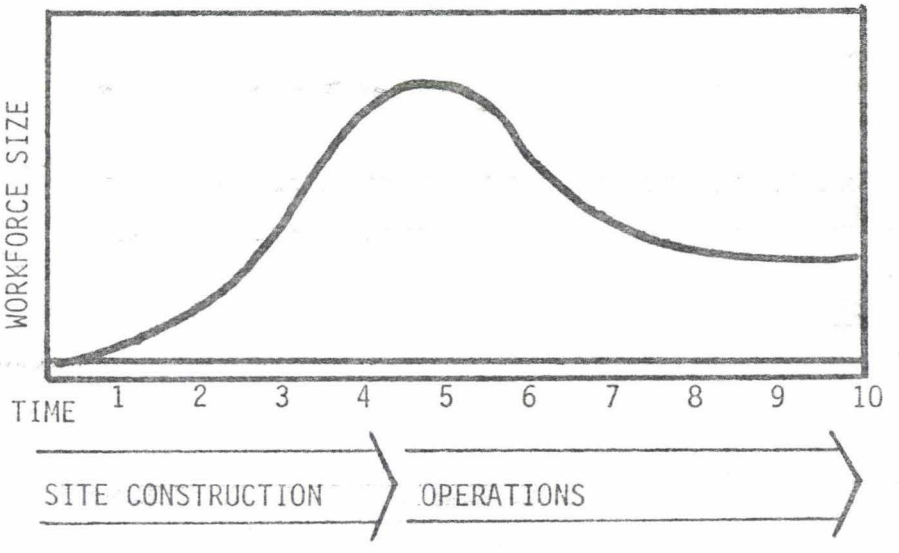
Typically, a large mineral operation will have a construction crew that peaks in size during the third or fourth year, followed by a steadier but smaller number of operational personnel. A practiced sociologist can use the development and operating plans of the project to identify the likely characteristics of the construction work force, as compared to the permanent operational crew. Typical age levels, recreational preferences, and lifestyles of these various groups can be determined in advance, and used to characterize the future community. Using these profiles to shape program directions will give the land manager flexibility to adapt to changing demands on the Forest. The projected profiles can help avoid being taken by surprise by changing needs.

One approach to describing these new communities and making predictions about their demands is documented in An Approach to Social Resource Management, SEAM, 1979.

The information about types of workforces, when they will be hired and the rate at which they will be brought into the area is available and easily obtained. A simple and systematic way to relate this information about workforces and community impacts is described in section 201. Making a graph, such as the one illustrated below, helps to organize and interrelate various sets of

information. The graphs also can be very useful in communicating new concepts among interdisciplinary team members.

Figure 1.1
MINERAL OPERATION WORKFORCE PROJECTIONS



Responsibility for the Absentee Public

New groups of workers, their families, and the new store keepers, teachers, etc. who collect in the region around large mineral developments can create, in combination with existing residents, a different social and economic base for the community. The newcomers, however, are not present during most of the planning and development phases of the new operation. It is especially important that the project newcomers, or absentee public, be considered in identifying public issues and management concerns. The land manager here benefits from the analysis by the social scientist of the likely cultural and economic characteristics of the new community in or near the Forest. With this analysis, the land manager can incorporate the likely needs of the absentee public into his consideration of the needs of the existing residents. It is critical that this be done so that programs and budgets in subsequent years cover the demands generated by the incoming public.

The objective of the land manager is to identify the adjustments that need to be made before the action begins on a minerals development. It is not necessary or desirable to wait to see what happens and then react to a conflict situation. The major social and economic impacts in the region around a large scale minerals operation, such as population growth, can be predicted and the effects quantified.

Management Through Cooperation

Many local, State and Federal agencies are involved in minerals development and the associated new communities. The Forest Service land manager will find himself in the best position to handle those issues which fall within his jurisdiction if he helps generate a cooperative approach among the affected Federal agencies, local governments and industry. By looking beyond the Forest border and making early contacts with other administrators in the region of the mineral development, the land manager will find his own tasks easier.

As important as coordination with other formal agencies is, there is the additional need to understand and work positively with the informal leadership that exists in most communities. This is a place where the field-experienced sociologist can be of considerable assistance to the management effort. Especially in the midst of the stress created by rapid changes in the community, certain key people who have no official positions can communicate and influence community viewpoints more effectively than official channels. Just because it is an informal kind of community leadership, there seldom are assured ways to establish rapport with it. Open public meetings go part of the way towards reaching this informal community leadership, but it is also necessary to go out into the community and learn who they are and what their concerns are.

During stable times, most Forest personnel develop easy communications and cooperative relationships with the community and with their counterparts in other agencies. Large new developments, however, can bring many new faces and agencies into the picture. It is during these changing times that is particularly important to build up and maintain coordination arrangements. A means for strengthening these arrangements is the Joint Review Process, as described in the next section.

103 - COORDINATION AND COMMUNICATION WITH OTHERS

Guidance Through the Multiagency Regulatory Process

Mineral developments present issues that cut across the jurisdictions of numerous State and Federal agencies. This creates needs for special administrative skill on the part of the Forest Service land manager. The task is to find appropriate ways to exercise limited authority within a group of many other authorities, so that the ultimate objective of protecting surface resources can be achieved. Establishing cooperative relationships with operators and other agencies is an essential part of the Forest Service land manager's responsibilities.

An important initial step is to identify which agencies have some jurisdiction or strong interests in a particular minerals development. Next, it is essential to have proper understanding of the scope of responsibility of each agency, and how they all interact. The Forest Service land manager should discuss his understanding of his place in the interaction with the other agencies and the operator, in order to identify any hazy areas. When everyone involved has a clear understanding of the respective roles, a lot of potential conflict can be avoided. Assistance with jurisdiction questions can be obtained from the Office of General Counsel.

Frequent communication and good working relationships with the other participants in the regulatory process benefit all parties.

Except as explicitly provided in the Code of Federal Regulations (CFR), jurisdiction over Federally owned minerals is in the hands of the Department of the Interior. Jurisdiction over some aspects of air and water quality management is lodged with other Federal and State agencies. The legislative trend is to give State agencies the job of monitoring and enforcing

Federal regulations. This is illustrated by the local operations of both the Environmental Protection Agency (EPA) and the Office of Surface Mining (OSM). For example, a State natural resource department may, under a letter of agreement, act for the OSM. These Federal/State relationships can vary from State to State. Each Forest should periodically check the agreements that are in effect locally.

Most aspects of the Forest Service's role have been defined and coordinated with other agencies, through memos of understanding at the Washington or regional levels. It is important to stay alert, however, to changes in personnel or procedures.

The Forest Service land manager will have the most contacts with the agencies of the Department of the Interior. A summary of the duties of these agencies with respect to minerals management follows.

The Bureau of Land Management (BLM) is to:

1. Set leasing policies;
2. Process leases, permits and licenses (coal);
3. Keep official records of mineral land status, ownership;
4. Process patent applications;
5. Interpret and apply mining and leasing laws through administrative processes;
6. Issue complaints leading to hearings on claim contests;
7. Manage mineral resources, even when surface jurisdiction is in other hands.

The U. S. Geological Survey (GS) is to:

1. Collect basic data on the size and extent of mineral deposits, and the quality, depth and potential value thereof;
2. Classify lands as to actual or probable presence of leasable mineral deposits;
3. Supervise operations and

activities for development and production of the various minerals under the leasing laws;

4. Provide technical engineering and geologic advice;
5. Maintain production accounts and collect royalties;
6. Prepare mineral maps and reports.

The Office of Surface Mining Reclamation and Enforcement (OSM) is to administer the provisions of the Surface Mining Control and Reclamation Act of 1977, dealing with surface coal mining (30 CFR 700 and 800). OSM duties may be discharged through cooperative State Agencies under letters of understanding. Specific situations must be checked out on a State by State basis.

Certain established patterns for interagency cooperation can be found in FSM 1531.12, 1531.14, 1531.41 and 1531.42

The Forest Service will have the opportunity to work with other Federal agencies, depending on the nature of particular mineral projects. Federal agencies may include the Water and Power Resource Service (Bureau of Reclamation), Fish and Wildlife service, Federal Power Commission, Department of Defense, Department of Energy, Heritage Conservation and Recreation Service, Environmental Protection Agency, Nuclear Regulatory Commission, and the Bureau of Mines.

State agencies can also be involved in mineral projects. Some of these are the State EPA representative, State Mining Boards, State Historical and Preservation Offices, State Lands Departments, State Oil and Gas Commissions and other environmental and mining related agencies.

The Forest Service land manager should be alert to ways to achieve his goals even when another agency is technically in charge of a particular project. For example, if the GS is the lead agency for preparing a mine EIS, the Forest Service

not only will be involved in the scoping process (as provided by NEPA), but also can request that the study cover some points of importance to the nearby Forest plan. In this way, both agencies meet their needs in a single effort, avoiding the greater time and expense of supplemental studies. The Forest Service's role as a "cooperating agency" should not be underestimated.

Decisions by Federal agencies, particularly about mineral projects, are increasingly subject to attack by dissatisfied parties. If agencies do not carefully cooperate in following established procedures, or do not keep records of their communications and the bases of their decisions, an administrative appeals procedure or a Court action may overturn their decisions. The land manager should realize that an agency decision may not be final if an opposing party can find procedural grounds for attacking it.

The Joint Review Process

An effective way to comply with the CEQ regulation to coordinate State and other Federal agency actions has been established in Colorado, called the Joint Review Process. Adaptable to any region or State, its purpose is to facilitate mutual planning and to coordinate decision-making for large recreation or mineral developments. The JRP group does not make decisions for the participating agencies. Rather, it acts as a clearing house, role clarifier, coordinator of field studies, and sounding board for citizen issues.

The beginning point of the JRP is when agencies agree to share information about their actions. Participation is strictly voluntary and does not undermine any existing statutory relationships.

After the agencies have agreed to meet, one agency from each level of government (local, State and Federal) is chosen to act as the lead in coordinating activities at each level. The lead agency acts as

a disseminator of information to other agencies at its level, and serves as a single point of contact for the developer when information is needed about that level of governmental activity. Thus, the operator continually knows where in the permit-approval process the project is. The key contribution of the JRP is to manage information by means of coordinated meetings among the affected agencies, public, and industry. Duplication of effort can be avoided, and issues can be brought into the open for resolution.

The JRP provides a setting for considering the cumulative effects of Federal actions in an area, as required by NEPA. By jointly developing task lists and schedules for work deadlines, the permit-approval process becomes more efficient. The JRP also meets the requirements of Forest Service Land and Resource Management Planning regulations, part 219.8, Coordination of

Public Planning Efforts:

(a) Efficient management of the resources of the National Forest System benefits from planning that is thoroughly coordinated among all levels of government...
(b) The responsible Forest Service official, through the interdisciplinary team, shall coordinate Forest Service planning with land and resource management planning of other affected government entities...

Communication with Operators

Operators frequently express their need for early and more frequent communication with Government agencies. The need is for a good deal more than the contacts required by the EIS process alone. The successful land manager does a lot of leg work and seeks many face to face contacts. These contacts can encourage constructive attitudes towards finding solutions to problems, and enable the land manager to provide leadership in meeting common land management goals.

The land manager has a lot to gain from such communications. For example, large mining companies often have collected much data about the physical, biological and

social environments before they apply for permits. These companies are interested in prompt environmental review of their projects, and usually they will provide their data to help the Forest team's own data collection efforts, so long as the company's competitive position is not endangered.

Most companies now recognize the advantages of getting issues into the open at the outset of project planning. Communicating Forest Service concerns early in a company's planning effort allows it to start responding constructively to those concerns during the preliminary and more flexible stages of project development.

Practical experience and recent research information can be shared to mutual advantage. The Forest staff can share recently researched reclamation techniques, as provided by SEAM and the Forest and Range Experiment Stations. As the parties actually responsible for doing the reclamation work, mining companies have their own research and practical knowledge, which should be tapped by the Forest staff and communicated to other Forests and Research Stations.

The local Forest staff should also remember the information needs of the Regional Office and other agencies who are distant from the minerals project. In most instances, the operator assumes that information given to the local District Ranger is routinely passed on to the appropriate personnel elsewhere in the Forest Service. District Rangers can help this communication process along, but also need to inform the operator when direct, formal communication is required with the Regional Office or with other agencies.

Recognizing the operator's problem and viewpoints is extremely important. Many of the operator's actions result from the pressure of the financial realities of mineral development and markets. There is seldom any firm assurance that the

financial risks will pay off in the form of a profitable operation. A project costs money at every stage, with returns on investments coming in most cases years or even decades after development begins. A corporation is obliged to act in the best interests of its stockholders, but it also must earn and keep a good public reputation, and respond to environmental legislation. It often is difficult for the prudent mineral developer to balance all the demands placed on the firm, while still providing a return to the investors who make the production of mineral commodities possible.

Small operators can be particularly hard pressed in competing with larger firms in today's market. The small firm usually works within a narrow margin of profit, and must analyze and respond to all the environmental laws without the capital or staff depth and diversity of a large company.

Discussions with many operators indicate that there is much frustration in their dealings with Government agencies. Examples of problems they encounter are lack of uniformity in leasing procedures, and poor understanding by some administering agents of how to treat the various mineral commodities. Two Government agencies may take opposite views of the same issue, and the operator is caught in the middle. This absorbs more time and expense in complying with a frequently changing load of Federal and State regulations. Unexplained delays in processing permit applications occur too often. Sometimes, a high turnover rate of agency personnel can make it very difficult for a company to keep a long term, complex operation functioning smoothly.

By showing understanding for the problems that mining companies have, the land manager will cultivate a more responsive consideration from operators for his problems. Open and early communication can aid both the Forest Service and the operator in their respective planning needs.

104 - RECLAMATION PHASES

The land manager will perceive the phases of his work somewhat differently from the operator doing exploration and development. The land manager focuses his attention on minimizing impacts during mineral exploration and development and on reclaiming the disturbed lands, as prescribed in the land management plan. The operator seeks to find a mineral resources deposit and to extract it as economically as possible. To achieve both goals of surface management and mineral resource development, the land manager and the operator must work together, recognizing that there will be trade-offs between full mineral development and complete surface resource preservation. These trade-off decisions must be made from a broad management perspective and not on an acre-by-acre basis. Wise management balances the development of the minerals with responsibility for protecting wildlife habitat and watersheds and providing for recreation, range and timber.

With these very long range responsibilities in mind, the Forest management team will need to be very sure of its ground as it sets up the proper phases of reclamation work, and gets them integrated into the mining plan. Reclamation planning needs to be complete before the ground is disturbed.

The Four Phases of Reclamation

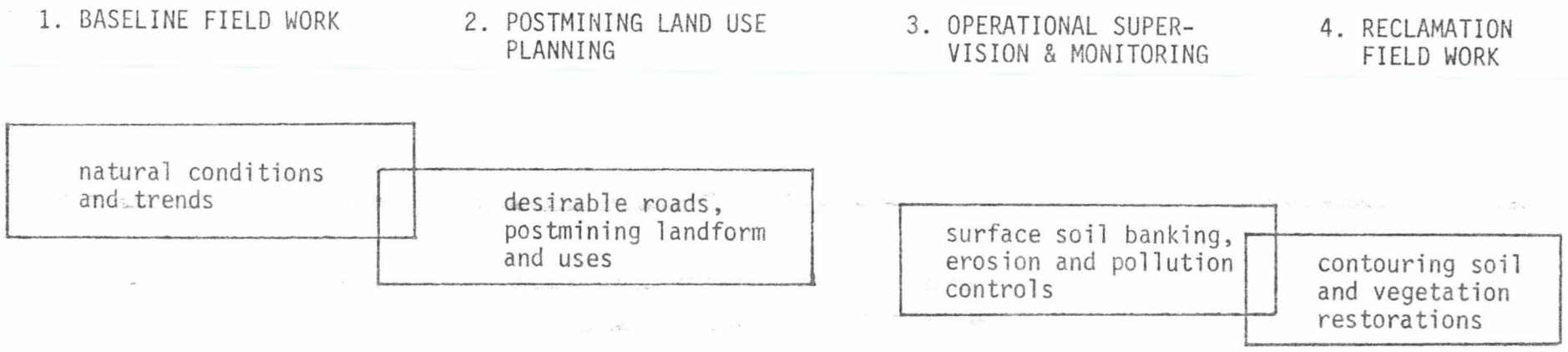
Figure 1.2 (p.18) portrays four basic phases of the reclamation process. The man on the street sees reclamation as simply replacing topsoil and replanting vegetation. In reality, that is only one phase of a process that the land manager starts much earlier. Well before the first dirt is turned, the land manager is active in two major phases of reclamation: gathering baseline data and planning for post-mining land uses.

Collecting baseline data in the field requires the work of many specialists, and for large projects can require a lot more time than the usual small operations with which most staffs are familiar. Large scale

Figure 1.2

PHASES OF RECLAMATION

Situation: Large scale project; work at each phase guided by issues and concerns


1. BASELINE FIELD WORK
2. POSTMINING LAND USE PLANNING
3. OPERATIONAL SUPER-VISION & MONITORING
4. RECLAMATION FIELD WORK
natural conditions and trends
desirable roads, postmining landform and uses
surface soil banking, erosion and pollution controls
contouring soil and vegetation restorations

projects, unlike the routine clearance time for small explorations and operations, require a minimum of 18 months for observing the full seasonal cycles and for data analysis and report writing.

Post-mining land uses do not have to be thought of only as a replacement of original conditions. During reclamation, the shape of the land may be open to limited redesign. A mining and reclamation plan should define desirable contours, drainages or impoundments, and vegetation for the disturbed areas. The landscape architect's skills are as important to a reclamation project as the biologist's. In other words, reclamation can be well suited to teamwork among specialists, and is an active part of the planning process right from the beginning. Recreation ponds, wildlife habitat, and roads useful to other Forest uses can be designed into the mining plan. The second phase of reclamation is a well conceived plan for the ultimate end-use of the disturbed area.

The phases of reclamation overlap, but they also form a series in which prior work is necessary before later phases can proceed. The land manager's job is to foresee the whole pattern of events and to help the participants play their roles at the appropriate times.

Baseline establishment and postmining land-use planning phases take place before mineral operations begin. They form an essential base for making an environmental analysis of proposed mineral activities. They also provide the basis for the land manager's monitoring job and for the operator's reclamation performance standards -- the third and fourth phases of the process. Although the requirements attached to the approvals that allow operations to begin can later be modified by joint agreement, fundamentally new performance standards cannot be imposed after operations commence. Hence the responsibility for looking 15 to 20 years ahead, and even longer for certain large operations. Today's land manager has the critical role of laying the groundwork with the operator for tomorrow's postmining landform and use.

Coordinating the Disciplines Involved in Reclamation

In addition to attention to scheduling requirements, it is necessary to understand the basic questions in each specialist's field. No one expects the land manager to be knowledgeable in each technical area involved in reclamation. The land manager, however, should know enough to insure the basic questions are answered during the planning process. The User Guides published by the Surface Environment and Mining group (SEAM) provide that general knowledge of the major disciplines that contribute to reclamation. (see p. 24)

Figure 1.3 portrays the basic contributions made by the specialists in Sociology, Economics, Engineering, Hydrology, Soils Science and Vegetation Science. The key roles are laid out according to the stages of prospecting, exploration, operating plan, development, mining, and post-mining.

Figure 1.3 Roles of Forest Service Specialists in Minerals Activities

	Prospecting	Exploration	Feasibility studies/operating plan	Development	Mining/reclamation	Postmining
Vegetation specialist	None at this point	Review of plans to reclaim land impacted by exploration Review and assist in vegetation aspects of environmental studies	Review adequacy of operating plan for: Reclamation program – species selection plant materials site preparation planting methods cultural treatments Monitoring/retreatment program for vegetation Vegetation aspects of end use	Monitor vegetation impacts and activities for conformance to operating plan. Advise on plan revisions when necessary Advise from a vegetation standpoint on release of reclamation bond	Monitor vegetation impacts and activities for conformance to operating plan. Advise on plan revisions when necessary Advise from a vegetation standpoint on release of reclamation bond	Monitor any continued impacts on vegetation Manage vegetation for end-use objective
Soils scientist	None at this point	Review of plans to reclaim land impacted by exploration Review and assist in soils aspects of environmental studies Review soils inventory progress in the mineralized areas; if needed, recommend timely completion or upgrading	Review adequacy of operating plan for: Reclamation Program – soils surveys storage area selection materials handling plans spoils analysis plan spoils treatments spoils surfacing and erosion control Monitoring/retreatment program for soils Soils aspects of end use	Monitor impacts on soils Monitor soils-related activities for conformance to operating plan. Advise on plan revisions when necessary	Monitor soils impacts and activities for conformance to operating plan. Advise on plan revisions when necessary Advise from a soils standpoint on release of reclamation bond	Monitor any continued impacts on soils Manage soils for end-use objective
Hydrologist	Establish baseline water quality monitoring as needed according to plan	Review of plans to reclaim land impacted by exploration Review and assist in hydrologic aspects of environmental studies	Review adequacy of operating plan for: Hydrologic considerations surface water subsurface water snow management roads impoundments mine drainage Hydrologic aspects of end use	Monitor impacts on hydrology	Monitor impacts on hydrology and hydrologic aspects of rehabilitation program Have hydrologic input into release of reclamation bond	Monitor any continued impacts on hydrology Manage hydrology for end-use objective
Engineer	None at this point	Review of plans to reclaim land impacted by exploration Review and assist in engineering aspects of environmental studies	Review adequacy of operating plan for: Engineering considerations – air pollution transportation facilities surface mine facilities mine waste disposal embankments tailings dams and impoundments subsidence Engineering aspects of end use	Monitor engineering-related activities for conformance to operating plan Advise on plan revisions when necessary	Advise from an engineering standpoint on release of reclamation bond	Monitor any continued impacts from engineered structures Manage structures for end-use objective
Economist	Monitor factors which affect supply and demand for minerals Make forecasts of supply and demand Predict probability	Analyze costs and benefits of alternative exploration methods Participate with the sociologist in identification of existing and emerging issues	Provide expertise in environmental analysis process issue identification decision criteria cost/benefit analysis of alternatives tradeoff and opportunity cost evaluations Analyze effects of development on: demand for surface resources human behavioral patterns community economics	Record costs Monitor economic changes	Record costs Monitor economic changes	Monitor to determine accuracy of predictions for future use
Sociologist	Identify the basic social/cultural descriptors of the affected communities Note current trends	Assist in structuring public involvement plan for appropriate: issue identification issue analysis mitigation action Identify critical trigger points from a social perspective	Provide expertise in environmental analysis process: decision criteria issue identification Analyze effects of development on the cultural and political community Consider effects of alternative plans on social well-being	Monitor Record changes Identify areas of individual or group stress relating to mineral activity and make recommendations to mitigate effects	Monitor Record changes	Monitor and record critical changes to establish new baseline situation

105 - INTERDISCIPLINARY MINERALS PLANNING

Minerals and the Interdisciplinary Team

All planning for the use of Forest lands, including minerals development, is done through interdisciplinary planning teams. When a team is designing the Forest plan, the minerals specialist alerts team members to known mineral deposits in the planning area, as well as to mineralized areas with mining potentials. In addition to this field information, the team will need to know essential information about the status of the land and mineral estates within the Forest, and where not to put certain facilities.

The general Forest plan should be shaped by a current inventory of mineralized areas and mineral projects, and should make a place for the forecasts of minerals specialists about potential future developments. The task is much more specific when confronting a mineral development proposal. The interdisciplinary team will then be in a reactive position, and will need to learn about the engineering constraints of the particular operation plan, as well as about the options for dealing with wastes, storage sites, transportation routes, water and power needs, habitat impacts, etc.

The team, including the minerals specialists, must be aware that the planning process directs them to deal only with those issues and concerns that are raised during the first phase of the planning process. If the significant issues and concerns are not selected for attention when indications appear that changes are needed in management directions, the data gathering and alternative formulation steps that follow will be hampered. The minerals specialist can help assure that management concerns identified at the beginning include those field and legal concerns unique to mineral developments.

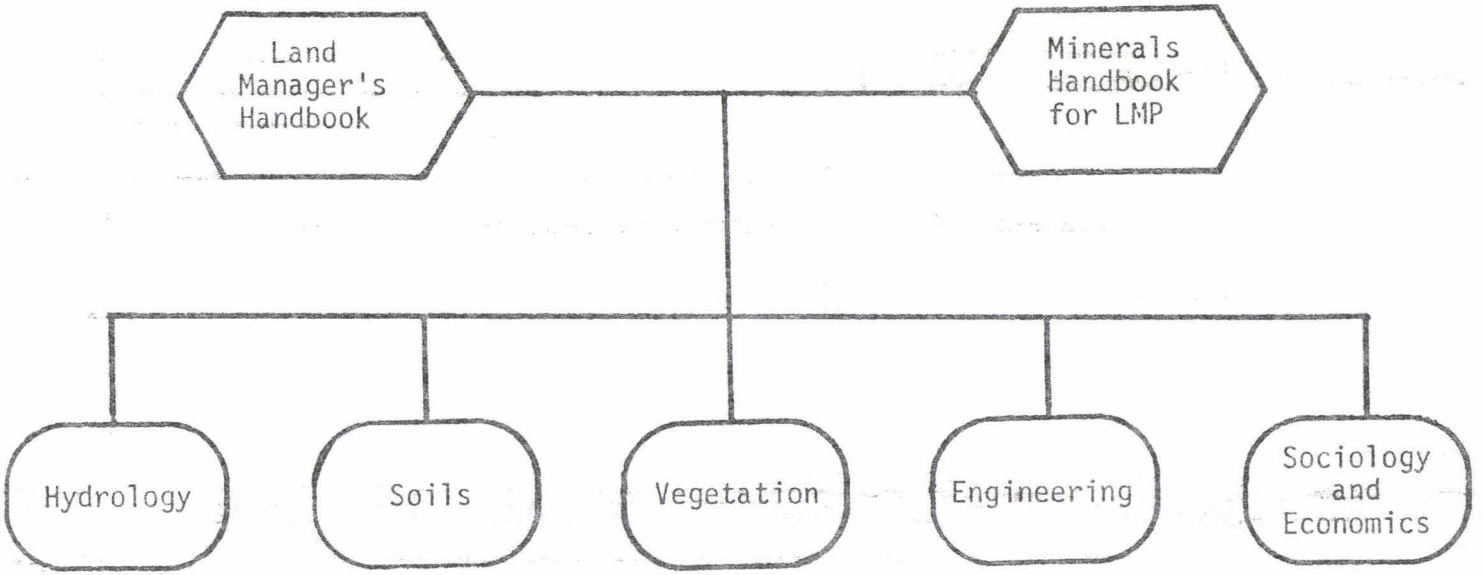
There are advantages to restricting field data collection to those issues and concerns identified in the scoping process. It reduces demands on staff time and budgets. It also helps keep irrelevant information from clouding the real issues. But this strong emphasis on the initial identification of issues and concerns places a distinct responsibility on land managers and mineral specialists. With appropriate early guidance, the Forest plan can avoid directing noncompatible surface uses into areas with high potential for pre-emptive minerals development use. Also, potential for obtaining benefits for other surface uses from mineral development spinoffs can be woven into the total planning effort.

SEAM User Guides

The User Guides produced by SEAM are useful documents for the land manager as well as the interdisciplinary team working on the Forest plan or on an environmental assessment. These guides help staff specialists from many disciplines understand their contributions to solving mined land problems. The guides focus on soils, hydrology, engineering, vegetation, and sociology and economics. A handbook has also been written on integrating minerals into the planning process. A handbook on visual management was published as a part of the National Forest Landscape Management Series.

Figure 1.4

MINERALS MANAGEMENT GUIDES PUBLISHED BY SEAM



106 - FOREST SERVICE ROLES IN THE REGULATORY PROCESS

This section will provide a general overview of three interrelated influences on the authority of the Forest Service land manager:

1. Federal and State mineral and property laws;
2. The regulations governing the operations of the Forest Service and other Federal agencies;
3. The Forest Service land management planning system.

Some of the fundamental concepts that are needed for understanding the regulatory role of the Forest Service land manager are covered in this Chapter. Then, in Chapter 200, an operational approach is taken to the same information. The text and figures in Chapter 200 are designed to show agency roles and actions as mineral developments take place.

Minerals in the Legal System

Understanding the mineral laws of the United States can sometimes be confusing. Sixty-five years ago in a landmark book on American mining law, Curtis H. Lindley wrote:

"The system is by no means symmetrical or perfect. It is one of the most difficult branches of the law to even arrange for the purposes of treatment, and the embarrassments surrounding its philosophical expression are almost insurmountable. It has received attention in a fragmentary way at the hands of eminent writers, who are most logical and instructive when discoursing upon its imperfections and apparent absurdities. The courts are not harmonious with regard to rules of interpretation. No one tribunal has exclusive jurisdiction to determine questions arising under it. Its proper interpretation does not always involve federal questions, conferring upon the federal courts jurisdiction. It has thus come to pass that the courts of last resort in several of the states and territories, in construing the same law, have reached diametrically opposite conclusions; and in many of its most important features we have conflicting theories enunciated by different courts of equal dignity and equal ability...It is not our purpose to condemn the system, but to endeavor to deal with it fairly as we find it." (A Treatise of the American Law Relating to Mines and Mineral Lands within the Public Land States and Territories and Governing the Acquisition

and Enjoyment of Mining Rights in Lands of the Public Domain, 3rd edition, Vol. 1, § 81, Bancroft-Whitney Company, San Francisco, California, 1914.)

Lindley wrote before environmental protections and many leasing laws made the job of the land manager even more complex. But the need is the same: to deal fairly with a complicated system that does not allow quick and simple answers, and yet in many cases requires prompt responsive action!

The basic historical background is that the Mining Law of 1872 consolidated earlier laws and clearly established the rights of any citizen to explore, claim and mine certain minerals wherever they are found on public domain lands, including those within the National Forest System, unless closed later by withdrawal. The minerals covered by this Law are called "locatable minerals." Congress removed certain minerals from the jurisdiction of the 1872 Law and made them "leasable minerals" by the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands of 1947, and the Geothermal Steam Act of 1970. A third category of mineral materials was created by Congress in the 1947 Materials Act and the 1955 Multiple Surface Use Act affecting common varieties of sand, gravel and similar materials. These acts gave the Forest Service the authority to sell certain common varieties of minerals called "salable minerals."

All minerals owned by the U.S. that are available for exploration and development are subject to disposal under one of these three categories -- locatables, leasables or salables. However, the Federal government bought a great deal of land, especially in the Eastern states, without also obtaining ownership of the minerals under the surface. Rights to some of these minerals remains "outstanding" or "reserved" (see p.32). Private owners of these minerals may remove them any time, subject to the surface management requirements of Federal and State laws. It is possible that some surface protection practices desired by the Forest Service cannot be required during the development of such outstanding mineral rights. The land manager who deals primarily with locatable minerals in the Western states needs to

shift perspective if transferred to the Eastern or Southern Regions. The basic categories remain the same, but the ratio of acquired land to National Forest public domain land is greater.

This handbook identifies the basic types of minerals and ownership patterns in the country, but the services of a well-versed local authority are needed to assure proper identification of the status of a particular holding. The reader's motto should be: Consult lands and/or minerals staff specialists, or the Office of General Counsel when minerals developments are first proposed. The minerals management job begins by determining the extent of the surface manager's authority under complex mining laws, within an evolving framework of Federal agency regulations.

Bases of Forest Service Mineral Management Authority

The three basic categories of Federally owned locatable, leasable and salable minerals, and the different ownership patterns such as surface and mineral estates, reserved and outstanding rights are explained in the following paragraphs. They show how the authority of the Forest Service fits into the larger picture of Federally and privately owned minerals.

Split Surface and Mineral Estates

The split ownership of surface and mineral estates has far-reaching consequences for the Forest Service as a surface management agency. The law allows mineral and surface rights to be bought and sold separately; therefore different parties may each have rights affecting one piece of property. The jurisdictions of Federal agencies follow this split, with agencies of the Department of the Interior managing Federally owned mineral estates while surface estates are managed by agencies of both the Department of the Interior and the Department of Agriculture.

On Federally acquired lands, there is a possibility of more complex ownership patterns. This could include Federal ownership of the surface and a division of mineral ownerships among several parties.

The point to remember is that many ownership combinations may exist. A practical approach to a complex picture of this type is to find out as early as possible who owns what, under what terms and conditions, and for what length of time. The minerals staff should be consulted as needed, and legal questions will be referred by them to the Office of General Counsel.

National Forest Public Domain vs. Acquired Lands

A second important concept deals with the two types of land owned by the Federal government, in which it may or may not own the minerals: public domain and acquired land. The minerals may also be subject to either status. The distinction between the two types of status is very important in determining Forest Service responsibility and authority regarding minerals development (see FSM 2805.1 for a full definition). Briefly, public domain lands, unless withdrawn, are open to mineral exploration and development under either the mining or the mineral leasing laws, depending on the class of mineral involved. There are some local exceptions, often found in the Eastern and Southern regions. Acquired lands, on the other hand, are open only to leasing. Many withdrawals prohibit location and entry under the mining laws, but still allow continued operation of the mineral leasing laws. Since there are these several possibilities, it is necessary to examine the land status of each case.

As a general rule, the Forest Service has greater authority over minerals in acquired lands than it does over minerals in public domain lands. This includes authority to consent to development of such minerals and geothermal resources. A development can be prohibited by withholding consent (based on valid reason). If consent is given, Forest Service stipulations must be attached to the license, permit or lease. Lands obtained by exchange for National Forest public domain lands

have been determined by the Attorney General of the United States to have public domain status.

Forest Service authority with respect to mineral development on public domain land is based on the 1872 Mining Law, which does not require special governmental consent for exploration and development. The laws on leasable minerals provide for concurrence with stipulations from the surface manager (except surface mined coal). Thus, the Forest Service can recommend stipulations for attachment to leased operations. The BLM has the legal right to override Forest Service recommendations, but this is very seldom done.

Land managers should know the ownership status (public domain or acquired) of both the surface and mineral estates within their jurisdictions. When mineral development and surface uses conflict, mineral development prevails as a general rule. If there are any questions about the use of any NFS lands regarding mining or leasing laws, obtain legal counsel through the minerals staff before taking action.

Federally Owned Minerals

All minerals owned by the United States that are available for exploration and development are subject to disposal under one of three categories -- locatable minerals, leasable minerals and salable minerals. Figure 1.5 is a quick reference guide to understanding how the three categories relate to each other and to specific mineral commodities. Definitions of these three categories are as follows:

Locatable Minerals: Historically, all mineral deposits on public domain lands were subject to disposal under the 1872 Mining Law. Those not excepted remain subject to disposal as locatable minerals.

Leasable Minerals: Leasables have been excepted from the 1872 Mining Law in two ways:

1. By specifying certain minerals by name, which are listed in Figure 1.5. This also applies to Geothermal

resources.

2. By providing a leasing system for minerals in land with acquired status. A gold deposit, for example, if found in acquired land, is a leasable.

Salable Minerals: Salables for a variety of reasons are available for disposal under a separate system. The major reason is their widespread occurence. Such minerals are classified by statute as common variety minerals. Minerals of the same type which have some property giving them distinct and special value remain locatables. With salables, the character of the deposit determines whether it is common or locatable. This means that before a deposit can be sold, a decision must be made whether or not the mineral is "common." This conclusion involves both factual and legal factors. It should not be reached without obtaining advice from minerals staff in consultation with the Office of General Counsel.

Figure 1.5 FEDERALLY OWNED

	LOCATABLE MINERALS (FSM 2810)
GENERAL DESCRIPTION (FSM 2801.2, 2801.3, 2801.4)	- mineral deposits open to exploration, location, development, and purchase under the General Mining Law of 1872, as amended and interpreted - minerals in sufficient quality and quantity to be a "valuable deposit" (FSM 2811)
COMMODITY EXAMPLES (FSM 2805)	A complete list of locatable minerals would include thousands; representative examples are: - gold, lead, zinc, molybdenum, iron, gems, copper, uranium, chemical grade limestone, asbestos
PROCESS OF DISPOSAL	Subject to a claim location and patent system for their exploration, location, development and purchase, on public domain lands not otherwise restricted. SEE HARDROCK ON PUBLIC DOMAIN AND PATENT PROCESS, FIGURES 2.7 and 2.8
FACTORS DETERMINING CATEGORY CHANGES (FSM 2805)	- if the mineral deposits are one of the minerals specifically designated by Congress and listed in the next column, they are leasables. - if the mineral deposits have acquired status, they become leasables. - if the mineral deposits lack a distinct and special property and are therefore determined to be common variety deposits, they become salables.

MINERAL RIGHTS

LEASABLE MINERALS (FSM 2820)	SALABLE MINERALS (FSM 2850)
- mineral deposits specifically excepted from the General Mining Law by Congress (principally through the Mineral Lands Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands of 1947, the President's Reorganization Plan No. 3 of 1946), and the Geothermal Act of 1970	- mineral deposits outside the scope of the General Mining Law because of widespread occurrence and "common" nature (disposal under the Materials Act of 1947 as amended)
as specified by Congress, are limited to the following minerals: - coal, oil, gas, potassium, sodium, phosphate, oil shale, native asphalt, solid and semisolid bitumen and bituminous rock, and deposits of sulfur in Louisiana and New Mexico; geothermal resources - mineral deposits with acquired status	including but not limited to: - common varieties of sand, stone, gravel, pumice, pumicite, cinders and clay
Subject to a permit/lease system for their exploration and development on public domain and acquired lands. SEE COAL, OIL & GAS, and/or HARDROCK ON ACQUIRED LANDS PROCESSES, FIGURES 2.9, 2.10, 2.11	Subject to a permit/sale system for their exploration and development SEE COMMON VARIETIES PROCESS, FIGURE 2.12
- includes mineral deposits that would otherwise be locatable where the land has acquired status	If a deposit has a unique property, giving it distinct and special value (value = "commercial value", as defined by quality and quantity of the deposit, geographical location, proximity to market or use, accessibility to transportation, requirements for reasonable reserves, feasible methods for mining, demand, etc.), it then becomes locatable or leasable, depending upon the public domain or acquired status of the land; the minerals staff and OGC will answer questions, or refer to the Department of the Interior for final determination

Privately Owned Minerals

Often, mineral rights were not purchased when surface rights were acquired for National Forest purposes. Sometimes mineral rights were not available, or were too expensive. Sometimes their acquisition was not thought necessary, based on the belief that no significant mineralization was present. Historically, the surface estate has been subservient in most cases to the rights of the mineral owner, so the surface owner has often been at a disadvantage in protecting surface resources. This situation makes the cultivation of good communications and a cooperative atmosphere particularly important.

As indicated in Figure 1.6, specific rights of the mineral estate owner vary from case to case. Each situation must be looked at individually to determine the applicable rights.

The first step when dealing with privately owned mineral rights is to make sure that the party claiming the rights does in fact own them. Written proof of subsurface rights should be provided to the Forest Service. Chains of title can date back many years and can be confusing, so expert legal help is often necessary to interpret conveyances. Restrictions often have been placed on conveyance documents, such as cessation of rights within a certain period of time based on lack of production. A type of conveyance that gives the mineral estate owner extensive rights is the "Kentucky broad form" mineral deed, used in several states. In essence, this deed provides that all minerals are granted "together with the right to enter upon said lands, use and operate the same and surface thereoff...in any and every manner that may be deemed necessary or convenient for mining...and in the use of said land and surface thereof...the mineral estate owner shall be free from...liability or claim of damages."

The practical result of a strict interpretation of this deed is that the mineral estate owner in some states has the right to damage the land surface without liability to compensate for damages.

Some Courts have set limitations on the mineral estate owners, in attempts to

protect the surface owners and their property. Some Courts flatly forbid mining that would destroy the land surface. Others provide either for monetary compensation or for reclamation and rehabilitation. Some require surface owner's consent to mine. State laws and mineral agencies must be consulted constantly.

MINERAL RIGHTS

	OUTSTANDING RIGHTS
GENERAL DEFINITIONS (FSM 2831, 2832)	- an ownership of all or part of the mineral rights by a third party (not the party conveying the land to the U.S.). Therefore, no Secretary's Rules and Regulations may be applied, as the third party is not an active participant in the conveyance of land to the Government, and duties and restrictions cannot be imposed without this party's consent. - the exercise of the mineral rights is conditioned by the specific language conveying (or reserving) the mineral rights, and the interpretations given thereto by the Courts.
DETERMINING RIGHTS AND DUTIES (FSM 2832, 2835, 2836, 2837)	The specific language of the particular legal instrument involved is the determining factor, so rights and duties must be defined on a case-by-case basis. For example, - title instruments modeled on the Kentucky broad form allow destruction of the surface with no liability for damages, according to some State Courts. Other Courts interpret basically identical language and fact situations to require surface compensation or to prohibit strip mining. - among factors considered in interpreting conveyances are the intent of the parties making the conveyance, the purpose of the severance, knowledge of mining methods at the time of the severance, existence of alternative methods of extraction, value and use of the surface, price paid for mineral estate, possibilities of reclamation, etc.
	NET RESULT: possibilities for surface control authority vary from zero to very comprehensive, depending upon the wording of the conveyances, the Court interpretations prevailing at the time, and existing State laws. (FSM 2832, 2836)

COMBINATIONS

A tract of land may be subject to two or more types of rights, both an outstanding right and a reserved right, fractional and/or future interests, one mineral owned by one party and the rest of the minerals owned by another; sections of a Forest which have been acquired at different times may be governed by different sets of Secretary's Rules and Regulations.

Thus, determining the extent of the surface manager's authority to control surface effects of a mining operation can be very complex. (FSM 2831, 2832, 2837)

Figure 1.6 PRIVATELY OWNED

RELATION TO SURFACE RIGHTS Mineral ownerships generally carry with them the right to use the surface (when owned by others) to the degree necessary to carry on reasonable mining operations; however, many ownership titles to the mineral estate expressly (or by Court interpretation) allow mining to destroy or collapse the surface without any obligation for reclamation or compensation. (FSM 2832)	GENERAL DEFINITIONS (FSM 2831, 2832)	RESERVED RIGHTS - retention of ownership of all or part of the mineral rights by the party conveying land to the U.S. - the exercise of these rights is conditioned by Secretary of Agriculture "Rules and Regulations" which are sometimes attached to and made a part of the deed, and by State laws. - the date of the conveyance determines which of the four sets of Rules and Regulations applies (1911, 1937, 1947 or 1963) unless otherwise provided in the deed
	DETERMINING RIGHTS AND DUTIES (FSM 2832 2835, 2836, 2837)	Rights and duties are comparatively easy to determine from the language of the applicable set of Secretary's Rules and Regulations; however, - variations of the four sets of Rules and Regulations were commonly used, so each title must be checked for additions, deletions, different wording, etc. - problems persist with interpreting the wording of the Rules and Regulations, so legal advice is necessary
		NET RESULT: some surface control authority is afforded by the Secretary's Rules and Regulations, and State laws. (FSM 2836)

Perspectives on the Approval Process

As discussed earlier, reclamation practices are dependent on seasonal and operational cycles with emphasis on field work. During the process of evaluating proposed activities and assuring that the necessary permits and approvals are acquired, the land manager must consider the time periods required to obtain field data and what seasonal factors apply, while also meeting the time requirements of the regulatory process. For brevity in the following illustration (Fig. 1.7), "approval" is used in a general sense to describe the go-ahead agreement outlining terms of operations for all types of mineral commodities. The "approval" could be contained in an exploration license, an operating plan, a lease, a prospecting permit, or in a recognition of a valid private mineral right. An operating plan approval under Forest Service regulations is not a permit in the legal sense, but an agreement between the Forest Service and the operator about what will be done to mitigate impacts.

The two basic stages of a minerals project are illustrated in Figure 1.7. During the authorization process (A), an understanding of the relative rights and duties of the parties has not yet been clearly established, and a period of negotiation may exist. During this period, extraction methods may be discussed, trade-offs made, reclamation goals and the means for obtaining them established, alternative locations for mineral wastes considered, and alternative transportation routes presented. This process can be very valuable in obtaining solutions to site specific problems not exactly covered by general regulations.

After the approval is issued (B), Forest Service actions become supervisory. Although some of the obligations in the approval can be modified to accommodate changes and unforeseen circumstances, once the approval is in effect, it is difficult to impose additional or more stringent duties on one of the parties. The supervisory role is generally shared with other agencies. The Forest Service land manager

Figure 1.7

THE TWO PHASES OF MINERALS PROJECT

A. MINERAL ACTIVITY AUTHORIZATION		B. SURFACE USE SUPERVISION
-exploration licenses (when required), prospecting permits, stipulations, etc. -lease consent/recommendation -plan review; permits, recommendation/ consent; stipulations -EA, EIS writing/participation -Forest plan review	APPROVAL	-monitoring of surface impacts -field examinations -termination review

will pay particular attention to reclamation activities, and will do the monitoring duties established in the mineral operating plan and the Forest plan. A final inspection takes place at the end of operations to make sure that the agreed end-use for the land has been achieved. The last step is a Forest Service sign-off, usually expressed as a recommendation for bond release.

Many complex activities occur in a minerals development project. Highlighting the before and after stages of the approval step is just one simplified way of looking at this process. The Forest Service land manager will also view such projects with the Forest planning process in mind, along with the phases of reclamation discussed earlier. While integrating all these processes in his own work, the land manager should also keep in mind the operator is thinking about the best

way to extract and market the mineral commodity, the national and international shifts in supply and demand, and the ultimate economic feasibility of the operation. When all parties are aware of these different concerns, communication is aided and the land management task becomes easier. The second chapter of this Handbook provides specific help for working with operators.

Minerals and the Planning Regulations

Mineral law governs the nature and extent of Forest Service authority relative to mineral extraction. Surface impacts incidental to extraction, however, are also subject to Forest Service influence derived from planning regulations. Areas of significant mineral deposits and mineral development activities, like other uses of NFS lands, are considered in the Forest planning process. The Forest planning team has the responsibility to consider the existence of mineral deposits and effects of mineral exploration and development in the planning area, even though the requirements that may be placed on locatable mineral activity are limited (36 CFR 252). Ancilary developments off valid claims do fall fully under Forest Service planning authority. Congressional direction for the planning and management system is contained in the Resources and Planning Act (RPA) of 1974, and its 1976 amendment, the National Forest Management Act (NFMA). A place is provided in the planning process for the consideration of mineral resource development effects on the Forest's renewable resources. Also to be considered are the ways management decisions about surface resource uses affect potential mineral resource uses. The minimum requirements regarding the consideration of minerals in the planning process are:

219.12 Forest Planning Actions

(j) The effects of mineral exploration and development in the planning area will be considered in the management of renewable resources. When available, the following will be recognized in the forest plan:

(1) Active mines within the area of land covered by the forest plan;
(2) Outstanding or reserved mineral rights;
(3) The probable occurrence of various minerals, including locatable, leasable and common variety;
(4) The potential for future mineral

development and potential for withdrawal from development; and
(5) The probable effect of renewable resource allocations and management on mineral resources and activities, including exploration and development.

Each Forest ID team must consider available information as listed above, whether or not a particular mineral development proposal is in hand.

The interdisciplinary team approach called for by the LRMP regulations is well suited for handling the many dimensions of mineral developments. The planning process provides a visable framework for clarifying and implementing the Forest Service role in minerals development.

Another aid to the local land manager is the RPA system, which established a regional context for evaluating minerals development issues. Sometimes land managers are subject to intense pressures because of local resistance to minerals developments. The wider, more distant public that benefits from such development is more adequately represented by the RPA and regional minerals programs.

CHAPTER 200

OPERATIONAL GUIDANCE FOR MINERALS MANAGEMENT

201 - UNDERSTANDING MINERAL OPERATIONS

Frequently, mineral developments are described as following the sequence of prospecting, development, production and reclamation. But the surface manager is not dealing with mineral operations in these general terms. Instead, the manager deals with a specific commodity, a particular site, and an individual company. So, it is essential for the manager to understand the unique features of the mineral project facing him.

An approach to organizing such information is shown in Figures 2.1 to 2.4, beginning on page 42. These figures are not overviews of phosphate or coal mining, since the variations among such operations make generalizations almost impossible. Rather, they are examples of information the land manager might need to effectively fulfill his role. The best blueprint for guiding the minerals management process is the one drawn up by the local land manager and his staff. This commodity time flow chart captures the site-specific conditions encountered by the operator and by the Forest staff as they forecast the timing, surface effects, and reclamation needs of a particular operation. Then, limited staff time can focus on areas of greatest need, and the operator and the land manager can communicate more effectively about their problems and goals.

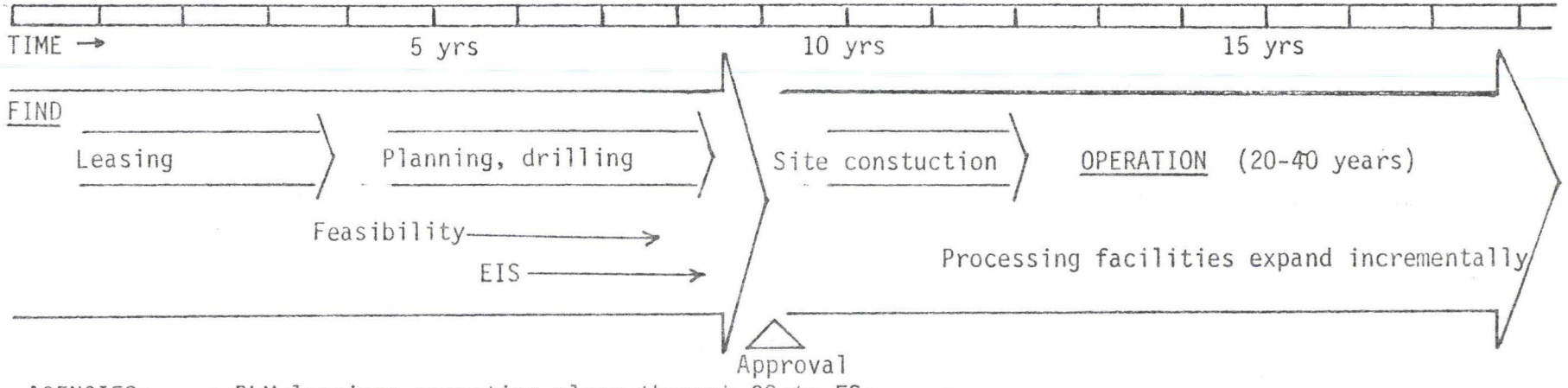
Building a Commodity Time Flow Chart

Many factors determine the size of operations, the mineral development problems, and even the techniques used to extract the mineral. The land manager needs to construct a chart to collect complex information about the proposed operation in a systematic manner. His sources of information will be the minerals staff and the operator.

The focus of the chart should be the time line. This time line represents the sequences and elapsed times that result from the nature of the mineral operation. While it is important to look at the timing and stages that concern the land manager, efforts should also be given to chart the development process from the operator's point of view. The manager needs to work with and not in opposition to, the basic timing, scale and features of a particular mineral operation. Much of the information needed to construct the chart comes from the operator. By understanding the dynamics of the mineral operation, the land manager can do a more effective job.

Preparing a time flow chart and getting basic preliminary information about the project out in front can help forestall unnecessary management concerns or misunderstandings about it. On first announcement, some large projects appear as if a great many impacts are going to occur at once. In reality, several years can pass between the stages of certain operations. Another example would be concern about the toxicity of overburdens. When the overburden is highly acid, significant drainage and revegetation problems can occur. Apprehension about this problem that is associated with Eastern coal mines can be reduced considerably in the case of phosphate strip mining, if the manager looks right away into the typical features of phosphate mining. Usually, the overburden associated with phosphates is neutral (pH 7.0), so less stringent precautions are needed against leaching of the overburden piles. On the other hand, tailings from some phosphates or slag from their furnace processing sometimes contain radioactive elements, leading to different management decisions than would apply to coal mines. Figure 2.2 on coal illustrates some special features. One of them is the unusually long-term contracts typical for delivering coal to utilities. Before a large coal mine can be feasible, the operator must set up a 20-30 year contract with a utility company or other industrial user. At the same time, the utility company builds its boilers to maximize BTU output, and control the ash

Figure 2.1 PHOSPHATE

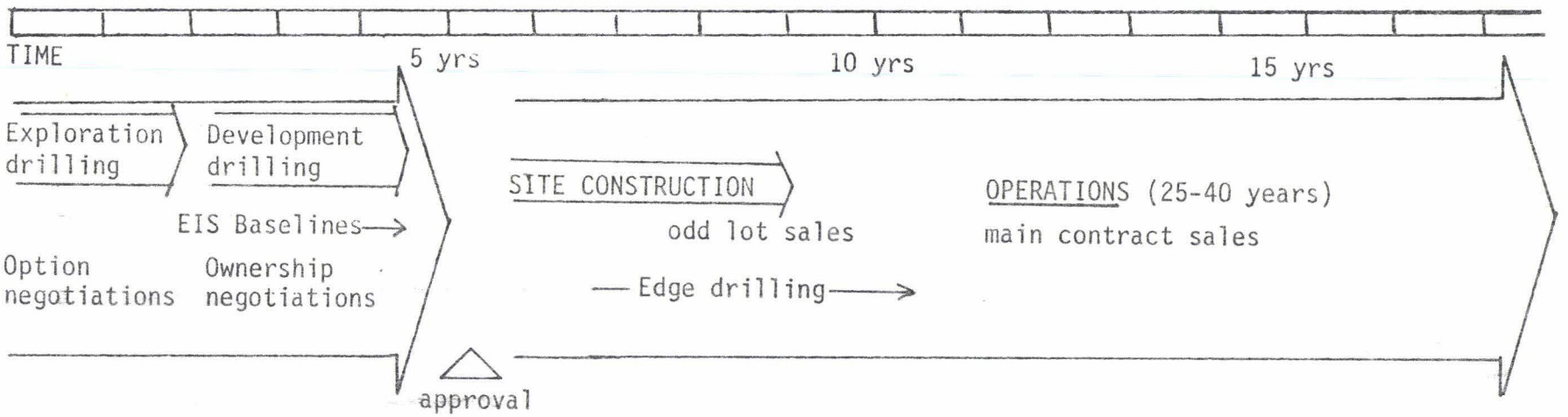


AGENCIES: BLM leasing; operating plans through GS to FS; enforcement through GS.

FEATURES: Western deposits frequently occur in steeply dipping beds. After recovery the highwalls are very difficult to reclaim. Most waste rock is non-toxic, but sometimes with fertilizer-type phosphate co-existing uranium minerals create radioactive tailings. Elemental phosphorus production will require slag disposal site. Eastern phosphates typically lie in flat beds close to the surface.

SCALE: Ore production can range from 3,500 to 14,000 tons/day, sometimes concentrated in summer months (maintenance and processing is year round). A large mine can cost $10 million to open; processing facilities can range from $30 to $140 million. The area of the typical lease disturbed is 60%, a portion at a time, with on-going reclamation following recovery operations.

Figure 2.2 COAL STRIPMINING

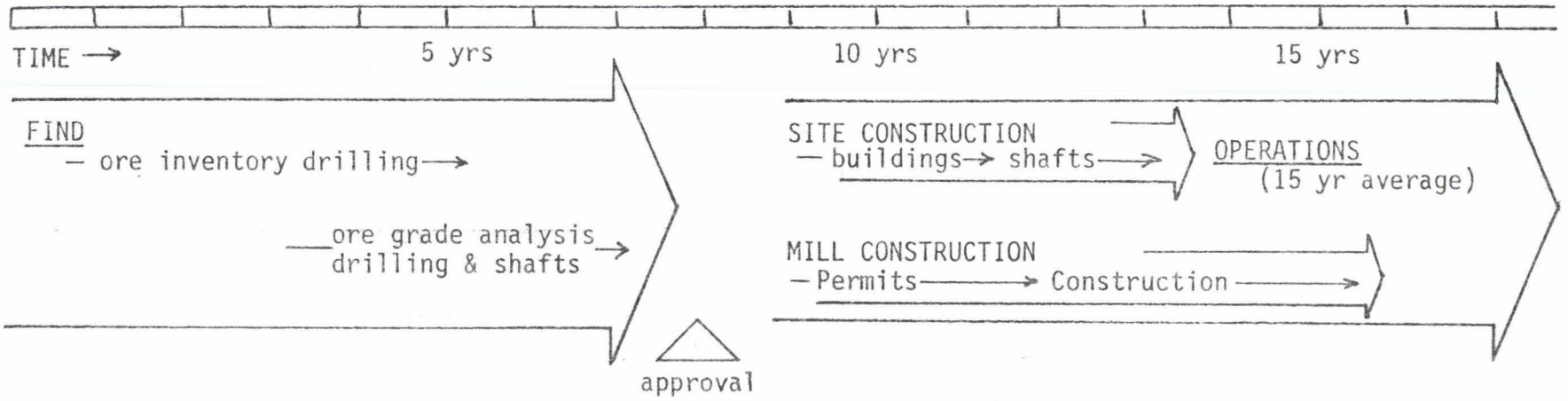


AGENCIES: Leasing by BLM; Permit and enforcement authority is shared among BLM, GS, FS, and OSM/State. State and Federal regulations (such as Clean Air and Water) must be complied with

FEATURES: Availability of surface use is hard to predict. Some leases prescribe that production must begin within a certain term of years, or the lease is lost. Heavy equipment orders can take 4-5 years to fulfill. Utility consumers design their boilers to suit output from particular mines. Some surface mines have multi-seam problems; toxic spoils.

SCALE: Production can range from 10-50,000 tons/day; 25-40 year life; $10-30 million needed for risk/exploration; $100-150 million needed for production. 300-500 acres per year disturbed, depending on seams, mine size.

Figure 2.3 URANIUM

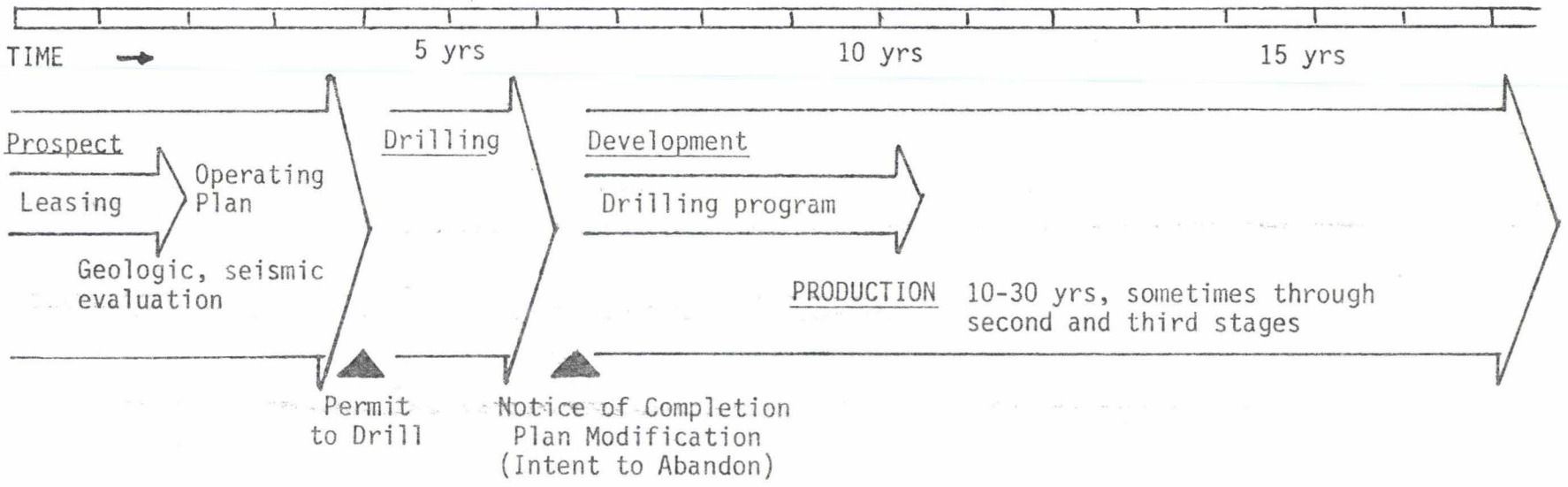


AGENCIES: Subject to location if public domain land, or leasable by BLM if acquired. When ore processing is involved, Nuclear Regulatory Commission and/or State licenses are required, with NRC cooperating agency doing EIS.

FEATURES: Many marginal deposits; exploratory shafts sometimes are needed to complete exploration of ore body; close surface drilling can sometimes create heavy surface impacts.

SCALE: A large-scale underground mine produces 1000 tons/day and requires $100 million investment in risk/exploration and $500 million for production capacity. Uranium requires longer than average exploration time and drilling (surface and underground) to establish mineable deposits.

Figure 2.4 OIL & GAS



AGENCIES: Leasing by BLM; operating plans through GS to FS; enforcement by GS.

FEATURES: One of ten wildcat exploratory holes leads to production. Operator under pressure to complete exploration before lease expires. Pipeline connections among wells and leaving the field require careful planning.

SCALE: A producing site can be one well if it is good enough; maximum of four holes/month drilling rate; $1-2 million for typical 10,000 foot hole.

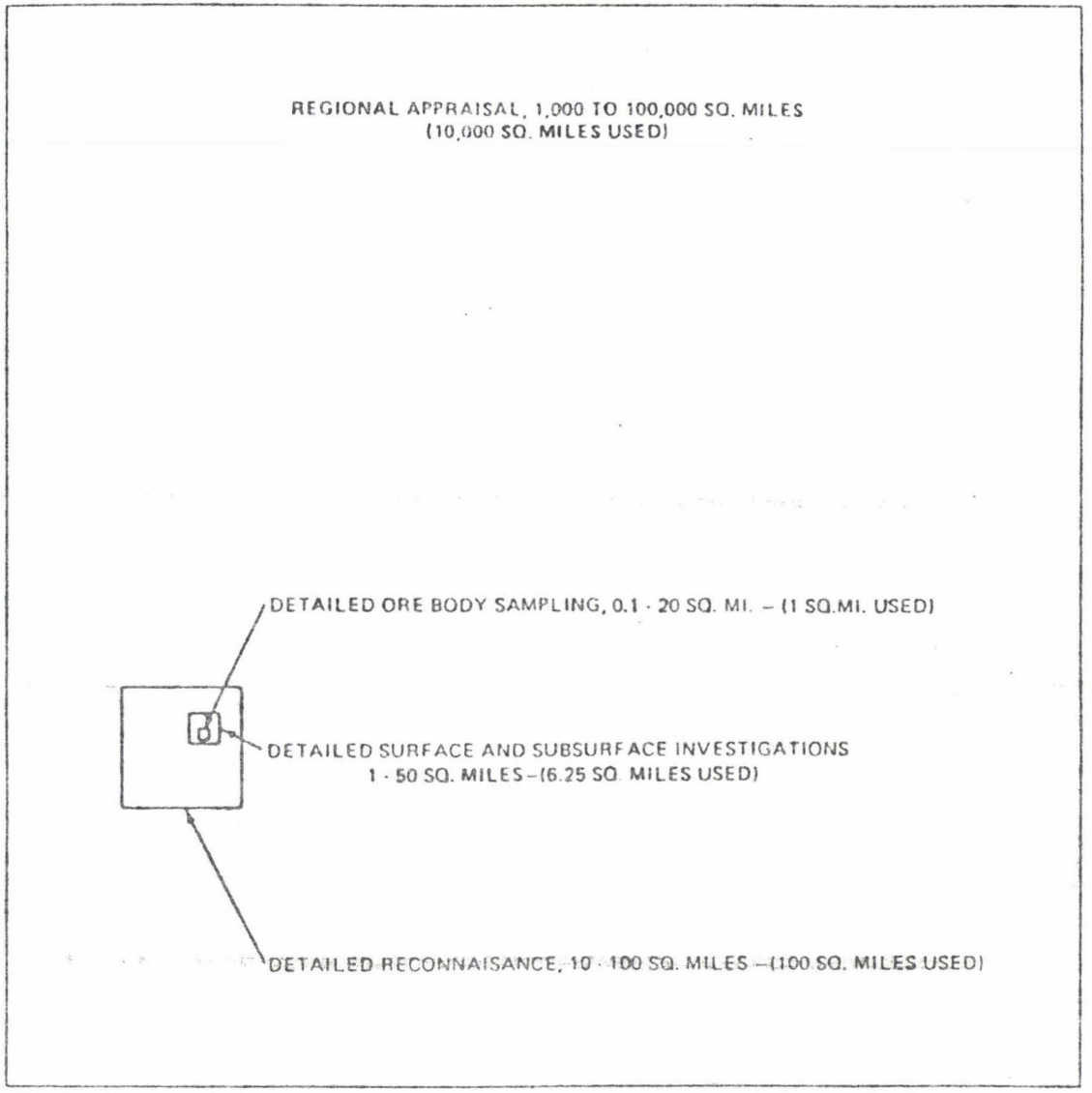
and sulfur content of the particular mine's coal. Thus, a coal mine is not an isolated phenomenon, subject only to local conditions and needs.

There are other factors a coal mine operator must consider. For example, huge draglines make it possible to reach otherwise unminable deposits, as well as return overburden and restore surface contours. Draglines are a costly investment, and must be ordered prior to mining since they take 3-5 years to build. Thus, an operator's questions about the permit process sometimes reflect the need to order such equipment well before the final permits are issued to prevent costly delays after receiving the permits. By being sensitive to the diverse pressures operators face, the minerals manager can help maintain good communications and cooperation.

Surface area needs among different mineral operations differ considerably. For example, exploration activities for low grade, disseminated mineral materials such as molybdenum or copper cover extensive surface areas. After mineralized areas have been determined, surface area actually needed for the operation is much smaller. On the other hand, development of vein or lode type deposits, such as coal, will often spread out from the original site. The molybdenum operator will do a lot of drilling in order to pin down the precise location of the ore, while the coal operator generally keep drilling around the original mine area in order to determine the outer edges of the seams. Based on such surface drilling, the coal operator usually has the information needed to proceed with mining much sooner than the molybdenum operator. Thus, once the original area is selected for mining, surface requirements for one type of material might tend to spread, while those for another type might tend to shrink.

Drawn approximately to scale, figure 2.5 illustrates how much land area may be considered at each exploration stage. Positive evidence at each stage leads to more intensive exploration over a smaller area at the next stage. Exploration tools used during initial phases usually do not create significant

Figure 2.5 TYPICAL SURFACE AREA NEEDS


REGIONAL APPRAISAL, 1,000 TO 100,000 SQ. MILES
(10,000 SQ. MILES USED)
DETAILED ORE BODY SAMPLING, 0.1 - 20 SQ. MI. - (1 SQ.MI. USED)
DETAILED SURFACE AND SUBSURFACE INVESTIGATIONS
1 - 50 SQ. MILES - (6.25 SQ. MILES USED)
DETAILED RECONNAISANCE, 10 - 100 SQ. MILES - (100 SQ. MILES USED)

Source: Final Report of the Task Force on the Availability of Federally Owned Mineral Lands

surface impacts. It is the last stage of detailed minerals deposit sampling, often done on areas of less than 2 square miles, when the most significant surface damage may occur.

Uranium deposits have special exploration problems. Frequently formed by leaching and redisposition in sedimentary formations most uranium ore bodies tend to have finger-like concentrations with gaps and breaks. These unpredictably scattered ore bodies may or may not be concentrated enough to justify mining operations. Not only closely spaced surface drilling is required, but sometimes excavations into the hillside are used to allow drilling from underneath suspected deposits. Thus, trenches, adits and shafts can be legitimate parts of the exploration work necessary before deciding to build a mine. This is an important point, because the public and land managers sometimes develop misunderstandings about what constitutes exploration and what signals the start of mining. Mining itself, of course, is illegal until certain permits have been issued, so it can be disturbing to see apparent mining being done before these permits have been granted. A major objective for early meetings with the operator is clear definition, within the law, of the line between explorations and mining activities.

Molybdenum deposits may also have peculiar characteristics that require subsurface exploration to determine whether to mine or what mining technique to use. Exploration work for some deposits may take 5 to 6 years.

The time pattern for oil and gas exploration and development takes still another shape. (Fig. 2.4.) Drilling will not be proposed until leases are issued. The lease permitting exploration does not also grant the right to extract. Drilling is regulated by a drilling permit. After exploratory drilling, the operator decides either to stop drilling and clean up the area, or to submit a plan modification to cover full development of the field. If development of a discovery well is not currently economic, it can be capped but not abandoned. Like coal, oil and gas can be produced before the full extent of the

field has been defined. Further leasing and exploration drilling can be expected around the edges of the proven field.

Oil and gas drilling requires small drill pads which means that there usually is less surface disturbance than with other minerals. Pipelines usually are needed, however, to connect the wells and to transport the oil and gas from the field. Small fields can sometimes use truck transport, and all fields need access roads.

Geothermal wells are much like oil and gas wells, but steam or hot water cannot be piped great distances without unacceptable heat loss. So conversion facilities usually must be placed within one mile of source wells. Hydrogen sulfide or other gasses released into the air can be a problem for people using the area, or can damage sensitive vegetation.

Thus, preparing a commodity time flow chart will help the surface manager understand various mineral deposit settings, unique land-surface uses, time scales, drilling requirements, and the particular feasibility conditions faced by the operator.

Along with these general characteristics of mineral developments, the chart can also highlight the roles played by other agencies. The land manager can protect himself from making incorrect assumptions by making a routine of writing out on the chart just what other agencies will be involved. Experience with a coal mine in one State, for example, may not quite fit a new coal mine in a neighboring State because State agencies in the new project may be operating under a letter of understanding with the Office of Surface Mining. There can be initial confusion about the role of the Nuclear Regulatory Commission (NRC) in uranium mining. While mining and moving the ore does not fall under NRC jurisdiction, if the ore is reduced or processed (milling or in-situ leaching), the NRC or its agent enter the regulatory process.

202 - SUMMARY GUIDE TO PROCESS FIGURES

This section introduces a second type of graphic illustration of mineral project information, and describes how the figures are intended to be used. The figures that follow are designed to be used in two steps.

Which Process Figures to Use

Figure 2.6 is an overview of located, leased and sold commodities that shows which one of the following set of process figures to use when dealing with a particular commodity. The key is that one process figure shows how more than one commodity is handled. That is, the process figure for hard rock minerals on public domain land shows how several locatable minerals are dealt with. Another important key is that a given commodity can in one land ownership situation be a locatable mineral, and in another situation be a leasable mineral (as explained in section 106).

The process figures emphasize Federally owned minerals since they have more bearing on the Forest Service role in minerals management. These figures also emphasize the Forest Service role within the larger picture of total agency-operator relationships. Key decision points are identified, and the notes column provides supporting information and references to additional sources of information on particular topics. The reader should keep in mind that thes figures are simplified overviews of some very complex processes. When dealing with a specific mineral operation. some "filling in" will be necessary. A cookbook approach that gives every detail about every possible situation would be too bulky to be practically usable and would quickly become out of date. An understanding of the underlying processes, however, allows the land manager to know how and where to get the detailed information he needs when a particular project come up.

Figure 2.6 lists a broad cross-section of minerals and suggests which process figure to use for each one. Some variations that are important to the minerals manager are

shown. Further information can be found in related statutes and regulations, such as lease acreage limitations, minimum bonding requirements, lease extension provisions, etc.

Prospecting Permits (FSM 2821 and 2822)
Both the Department of the Interior (DOI), through the Bureau of Land Management (BLM), and the Forest Service issue prospecting permits. Figure 2.6 indicates whether the BLM or the Forest Service permit should be issued for the specific mineral being considered. If both sorts of permits are authorized, the type of exploration will determine which of the two the operator uses. A holder of a valid Department of the Interior prospecting permit, coal exploration license, or approved plan of operations under a lease, does not need a Forest Service prospecting permit for the same land and the same operation. Operators usually prefer BLM permits because they afford preference rights for many minerals. No preference rights are conveyed under Forest Service permits, except in some cases of common varieties on acquired lands.

The Leasing Process

Three of the figures (fig. 2.9 - 2.11) illustrate the leasing process -- for coal acquired hardrock minerals, and oil and gas. These three figures have many similarities, but each one presents a particularly important feature. The coal figure (fig. 2.9) shows the unique role of the Office of Surface Mining (OSM) plays in relation to coal mining. The oil and gas figure (fig. 2.10) shows the use of the Forest Service prospecting permit, while the acquired hardrock figure (fig. 2.11) illustrates the use of the BLM prospecting permit. The two types of Forest Service authority - consent and recommendation - are pointed out in the oil and gas figure.

These three figures should be compared and contrasted, since portions of two figures may be needed to understand a particular development. The land manager needs to know that processes can vary, and know which variations apply to the minerals development under consideration. For example, when using the acquired hardrock

figure as a prototype for phosphate, note that the Forest Service authority differs. For phosphate developments, the consent/ recommendation split exists, so the oil and gas chart should be referred to for this process. Therefore, the "suggested" figure is simply the one most similar to the mineral listed. The items in the various other columns must also be checked.

The three most important items to check when using the agency role figures are:

1. Whether the Forest Service has consent or recommendation authority;
2. Whether a preference right leasing system applies;
3. The notations in the final column. These are the variables that most affect the land manager.

Figure 2.6 - SUMMARY GUIDE TO THE USE OF THE PROCESS FIGURES

MINERAL	SUGGESTED PROCESS FIGURE	B L M PP	FS PP	BLM PERMIT: TERM/EXTENSION	PREF. RIGHT LEASE	PRIMARY LEASE TERM	FS AUTH.	NOTES
Asphalt	Oil & Gas OR Acq. Hardrock	yes	yes	2 yr / 2 yr	no	10 yrs	C/R	
Coal	Coal	no*	no*	2 yr / none*	no	20 yrs	C	*Coal exploration license.
Common Var.	Common Var.	no	yes	-	no	n/a	discret.	
Geothermal	Oil & Gas	no	yes	-	no	20 yrs	C	Generation plants need to be very close to wells.
Hardrock (Acquired)	Acq. Hardrock	yes	yes	2 yr / 2 yr	preference considered	20 yrs	C	No right to lease; but if lease issued, prospector given priority
Hardrock (PD)	PD Hardrock	(these columns not applicable to Locatables----------)					36 CFR 252	
Oil & Gas	Oil & Gas	no	yes	-	no	10 yr noncomp. 5 yr competitive		
Oil Shale**	Acq. Hardrock	yes**	yes**	2 yr / 2 yr**	no**	20 yrs**	C/R	**These general BLM provisions may apply; however no regulations specific to oil shale now exist.
Phosphate	Acq. Hardrock	yes	yes	2 yr / 4 yr	yes	20 yrs	C/R	
Potassium	Acq. Hardrock	yes	yes	2 yr / 2 yr	yes	20 yrs	C/R	Also called potash.
Sodium	Acq. Hardrock	yes	yes	2 yr / none	yes	20 yrs	C/R	
Sulphur***	Acq. Hardrock	yes	yes	2 yr / none	yes	20 yrs	C/R	***Locatable, except in LA, NM, and all acquired lands.
Uranium	(see Hardrock items above - acquired or public domain as applicable to specific situation)							Check with environmental agencies for waste & water standards; if ore is processed in any way = NRC jurisdiction.

ABBREVIATIONS USED:

BLM - Bureau of Land Management C - Forest Service consent authority C/R - Forest Service consent authority on acquired lands, recommendation authority on PD lands.

PD - Public domain lands PP - Prospecting permit

203 - PROCESS FIGURES

The purposes of the following figures are to:

1. Give a quick overview of the complex processes involved with minerals management;
2. Identify the Forest Service role and its relationships to the roles of other agencies;
3. Note decision points;
4. Illustrate communication points with other agencies the operators,
5. Indicate other sources of information on a given topic through footnotes and comments.

The figures describe basic processes, and do not attempt to show everything about the particular commodity that is used to illustrate the process. After studying figure 2.10 on Oil and Gas, for example, one can infer how leasable geothermal resources are handled. Use also should be made of figure 2.6 to find any important variations. The process figures should be followed horizontally as well as vertically, since the different agencies perform their roles simultaneously. The Forest Service role is given in more detail, with the other agencies listed when they have major, predictable contacts with the Forest Service.

Hardrock on Public Domain Land (FSM 2810)

Figure 2.7 pertains only to public domain land open to mineral entry under the 1872 Mining Law. It does not necessarily apply to the Eastern United States. When dealing with locatable minerals, it is important to remember that citizens have the right to explore, locate, develop and mine these minerals. The land manager must respect the statuatory rights of prospectors and miners who exercise those rights in a lawful manner. Indeed, the development of mineral resources is encouraged by the Federal government. Sometimes special interest groups or even some government agencies want the Forest Service to stop a minerals development so

there will be no surface disturbances when, in fact, the Forest Service has no authority to do so. To prevent misunderstandings, the limitations on Surface Manager's authority should be made known to groups who challenge development activities.

The Forest Service regulations concerning the 1872 Act (FSM 2817) were issued to "minimize adverse environmental impacts on National Forest System surface resources" associated with mining operations. These regulations recognize the "statutory right to enter upon the public lands to search for minerals."

Surface disturbances from prospecting are allowable before a deposit is discovered. However, the regulations can be applied in cases of unnecessary or unreasonable disturbances. Operating plans should show that surface resources are used in a reasonable manner, even though there may be some adverse impacts. The regulations may be cited to change an operator's actions when there are choices for handling surface resources. For example, a road might be built in a different location more easily to control erosion.

The 1872 Mining Law authorizes only legitimate attempts to prospect and develop mineral deposits. It does not authorize use of the site for activities not directly related to prospecting and mining.

Sometime it is not clear if activities are those allowed under the law. There are many cases in which individuals misuse and misconstrue the 1872 Law. Unauthorized uses may require actions to terminate such surface uses, including eviction after court proceedings. The statutory protections given to prospectors and miners should be evaluated individually, and an effort made to be reasonable and respectful of the rights and duties of all parties. When there are questions about Forest Service authority on this issue, consult legal counsel.

The process shown in figure 2.7 is the same for a large mining project as it is for the

miner with a pick and shovel. The large operation though, will require more cycles of the process, more modifications of the plan, and more complex and detailed information.

A cooperative relationship should begin at the first contact between the Forest Service representative and the operator. At the outset, the land manager should explain the relative rights and duties of each party and the reasons for the regulations. The manager should emphasize that the operator's rights are recognized, and that the regulations' intent is to minimize surface-resource impacts, to plan other surface-use activities around the mining area, to plan reclamation, and to gauge the character of the mining activity. The merits of complying with the regulations also should be pointed out.

The regulations on operating plans are limited by the rights granted by the 1872 Law. Thus the government surface manager may require an operating plan, but he may not use a disapproval of the plan, as a means of blocking legitimate use of the surface for prospecting or mining activities. There are options under the regulations for requiring further work on operating plans (see c, d, and e under USFS Role on p.60). It may be necessary to consult with the Office of General Council for advice about what activities are reasonable and necessary. Settling differences of opinion can be helped considerably if the land manager makes a special effort to keep communications open and to understand the miner's point of view.

An Environmental Impact Statement (EIS) is not required for every development. An EIS is required when the approval of the operating plan would be a major Federal action having significant environmental effects. An Environmental Assessment (EA), on the other hand, must always be done to assess the situation and to document the decision about whether or not to proceed with a full EIS. Mineral owners should be kept informed of the time periods necessary for completing these documents.

Figure 2.7 HARDROCK ON

(Hardrock public domain

There is a fairly consistent sequence of events horizontally across the four columns. The operator's column, however, reflects the fact that the operator is usually following two sets of interrelated processes at the same time--complying with the Forest Service regulations (FSM 2817) and complying with the legally mandated claiming steps based on the 1872 Mining Act (FSM 2810.04). These processes follow in sequential steps within themselves; but the interrelation between the two sets is not always the same. Therefore, several steps in the Operator's Role column in practice will not be timed consistently with events in the Forest Service Role column, which primarily follows the FSM 2817 process.

OPERATOR'S ROLE (FSM 2811, 2813)	BLM'S ROLE (FSM 2804, 2819)
Under the 1872 Mining Act, the public has the right to go on National Forest System lands which are open to mineral location in order to prospect for, appropriate, develop, and process locatable minerals. The law not only gives the right to the mineral resource, but also to the use of the surface and surface resources so long as that use is reasonable and necessary for exploration and mining activities. A valid location gives protection against rival claimants. A mining claim gives the owner protection against appropriations or withdrawals by the Federal government.	The Department of the Interior, through the BLM, is responsible for the administration and disposal of Federally-owned mineral resources; however, it plays a passive role in relation to locatable minerals under the 1872 Act, except for patenting. It serves as a recording depository under FLPMA, determines defects in deeds, and determines claim validity when the question arises whether the land was open to location at the time of claim filing.

PUBLIC DOMAIN

minerals are locatable minerals)

	Several time periods specified in the Forest Service Role column are mandated by regulations. When in certain situations it becomes difficult to comply with the deadlines, work should proceed as expeditiously as possible, with notification given to the operator of the reasons for the delay and the expected completion time. Land status should be checked by the authorized Forest Service officers (DR or Forest Supervisor) to determine which lands under their jurisdiction are open to mineral location and entry. If the land has been withdrawn from mineral location and entry, the date of withdrawal is an important factor, as validity of a claim is determined as the date of withdrawal.
USFS ROLE (FSM 2817)	
The Forest Service is responsible for the management of the surface resources of National Forests, acting in cooperation with the operators to minimize the surface disturbances of mining activities. Authority to mitigate surface disturbances must not be used to unreasonably impede mining; the Forest Service is required by the 1970 Mining and Minerals Policy Act to foster and encourage private enterprise in mining and in the development of a sound mineral industry. (FSM 2801.1) Rights to minerals are not determined by FSM 2817 authority, which has the sole purpose of minimizing the surface effects of mining activities.	

OPERATOR'S ROLE (FSM 2811, 2813)	BLM ROLE
Prospector has responsibility to contact Forest Service before proceeding with surface use which might cause disturbance of surface resources. - Provides notice of intent to operate or operating plan if necessary.	
Claiming Steps (FSM 2811.5) Definitions of terms: FSM 2805 Claiming steps, as outlined below may or may not be covered by an operating plan, depending upon surface disturbances involved at each step. 1. Establishes exclusive right of possession against other locators (not the Federal Government) by making a valid location. 2. Discovery The statutes state that discovery must occur before claim location and assessment work, but in a practice confirmed by administrative and court decisions it usually follows them 3. Location work, in accordance with State laws 4. Assessment work	BLM may be required to notify Forest Service of claim activity or filing

minerals are locatables)

USFS ROLE (FSM 2817)	NOTES (FSM 2817)
DR may require a Notice of Intent to operate (NOI) in order to determine anticipated surface disturbances. DR determines if significant surface disturbances are likely to occur and notifies operator within 15 days from submission of NOI if operating plan is required. - Operator may initially file operating plan, bypassing NOI, when significant surface disturbances will be involved.	There are some operations that will require neither an NOI nor an operating plan, some which will require only an NOI, and some which will require a full operating plan. Field work may occur simultaneously with Forest Service role processes so that operator's statutory rights will not be infringed upon.
When proposed operating plan is received, the DR conducts an Environmental Assessment (EA) within 30 days and notifies operator that: a. Operating plan is not required b. Operating plan is approved as is c. Operating plan needs changes d. More time is needed for review (up to 60 additional days are allowed) e. Approval must be deferred until final Environmental Impact Statement (EIS) has been prepared and filed with Council on Environmental Quality (CEQ). EIS prepared if necessary. DR and operator review operating plan to negotiate operating terms, bond amount, etc. Operator must deposit or furnish evidence of bond if DR requires it. Operating plan is signed by DR and operator.	EA should be prepared using ID team approach. Forest Plan will provide constraints and management direction. Operating plan must comply with State and Federal environmental protection standards. NOTE: there is no option for final disapproval of operating plan. Grievances of an operator regarding a Forest Service decision may be appealed to the Forest Supervisor and then to the Regional Forester; if denied there, further appeal may proceed through Federal Court system. DR authority does not extend to operations in Wilderness, those that require an EIS, or those where bond exceeds $20,000.

OPERATOR'S ROLE (FSM 2811, 2813)	BLM ROLE (FSM 2804, 2814, 2919)
5. Recording (with County, State & Federal, as required)	BLM State Office is the office of record for various required filings (Affidavit of Assessment Work, Notice of Intention to Hold, etc.) under the requirements of the Federal Land Policy and Management Act of 1976.
	BLM processes all claim contests. Department of the Interior (DOI), through the Office of Hearings and Appeals and the Interior Board of Land Appeals (IBLA), determines claim validity and may validate the claim despite USFS testimony and evidence.
6. Miner works claim in accordance with operating plan and performs appropriate rehabilitation in course of operations. Miner has right of possession and occupancy, access rights, and certain surface use rights for mining and related purposes only. 7. Optional patent application	
Miner gives notice of termination of operations (probably not done as a matter of course because of benefits derived from sitting on a claim and the relative ease of doing so). Or, miner may decide to apply for patent on the claim (see Figure 2.8 for this process).	

minerals are locatables)

USFS ROLE (FSM 2817)	NOTES
	Discovery work, location criteria, and recording procedures are established by the States and vary from State to State. (FSM 2811, 2813)
Regional Forester can initiate a claim contest by request to BLM at any time. (FSM 2819)	Claim contests generally occur when the Government needs the land (such as for a campground or for a withdrawal), or when there is abuse of the mining laws (such as hunting cabin on claimsite), or the patent application is not supported by requisite valid discovery. DOI determines validity of claims; FS has only investigatory authority through an interdepartment memo of understanding. FS does not have adjudicatory authority. (FSM 2818.3, 2819)
DR has right to inspect operations & issue notices of non-compliance with plan to the operator if the non-compliance is unnecessary and unreasonably causes injury, loss or damage to surface resources. FS may initiate action to curtail operations for unnecessary surface disturbances (no statutory definition of "necessary" - case by case determination).	Attempt negotiated solution; modification of operating plan is a possible solution if satisfactory conditions can be agreed upon. Keep in mind the operator's right to necessary and reasonable surface use in pursuit of mining. Legal action to force compliance should be used only as a last resort. (FSM 2817.3, 2818)
DR/Forest Supervisor performs inspection & approves abandonment and release of bond if reclamation is satisfactory. If reclamation is unsatisfactory, operator will be given the chance to satisfactorilly complete it, or the bond will be forfeited and the funds used to defray costs of completing reclamation.	FS may require only those reclamation activities included in original operating plan, unless renegotiated with operator.

Operators must perform certain acts to comply with the requirements for locating and maintaining their claims. Different jurisdictions label these requirements in different ways, and figure 2.7 lists five of the basic steps in the claiming process. Knowing these steps provides an understanding of the claimant's responsibilities. The detailed requirements may vary from State to State, so the land manager should be aware of the State laws which apply to his region.

The Federal Land Policy and Management Act of 1976 changed some recording requirements for mining claims. The Act did not change local jurisdiction requirements, but simply required a second filing with the Federal government through the state office of the BLM. Using the BLM files, the Forest Service is able to find out what claims are filed and where. This information can be used to help detect unlawful surface uses.

Problems that occur can often be handled by talking with the operator and finding mutually acceptable solutions. Enforcing regulations, laws or plans provisions may proceed through an injunction to stop unnecessary surface damage (FSM 2817.3). A claim contest also may be initiated if there is just cause and adequate evidence.

The Patent Process

The patent process, summarized in figure 2.8, was devised as an incentive to encourage settlement of the West and the development of valuable minerals. Once patent is secured, the owner no longer has to perform assessment work, record papers, develop the mineral, or refrain from non-mining activities.

The rules on patent proceedings provide very narrow limits on government decisions. The government must issue a patent if the statutory requirement are satisfied, and it must grant full title unless certain conditions exist. Even then it does not have discretion about the type of restriction that may be applied. Presently the price is $2.50/acre for placer claims and $5.00/acre for lode claims. No EIS is required because

there is no discretionary Governmental decision.

The Forest Service, under authority of a memo of understanding with BLM, examines claims to determine their validity. This examination will basically consist of sampling mineralization evidence, assaying samples, and weighing economic factors to determine if the operation would be profitable. Finally, the Forest Service forwards its opinions of validity to the Department of the Interior. If there is a contest action, an administrative law judge in the Department of the Interior holds a hearing in which all parties present evidence. Even after a negative ruling, the land is still open to claiming under the 1872 Law if a later discovery is made. Decisions can be appealed to the Interior Board of Land Appeals, and then through the Federal court system.

The decision to go to patent is not a simple one. The pros and cons may be summarized as follows:

Reasons for patenting:

a. Obtaining private land at a low price;

b. Eliminating requirement for assessment work and filings;

c. Gaining protection against other locators and the Government;

d. Keeping the land after the deposit is mined out;

e. Perfecting rights to the land when economic conditions are best for validating a claim;

f. Preventing the loss of a claim through possible repeal or revision of the 1872 Law.

Reasons for not patenting:

a. The right to mine the deposit exists without a patent;

b. The additional time and expense involved in going to patent;

c. The chance of losing a patent action and thus affecting current operations;

d. The chance of bringing Government attention to a marginal deposit that it would otherwise ignore;

e. The difficulty of proving claim validity;

f. The additional duties and responsibilities of taxation, etc.;

g. The fact that if land is withdrawn, or the 1872 Mining Law is changed, valid existing claims would be protected without a patent.

Figure 2.8 HARDROCK

(Pertains only to locatable

OPERATOR'S ROLE (FSM 2815, 2816)	BLM ROLE (FSM 1531.12, 2815, 2819)
The status of a claim may be changed by the operator to that of private land (fee simple) by obtaining a patent from the U.S. Government. A patent may convey a limited title in certain instances (such as title to the mineral estate only) or a title with certain restrictions (such as an easement)	
Operator files an application for a patent after meeting the following major requirements: a. establishes that he has a validly located claim b. substantiates discovery of a valuable mineral deposit c. provides mineral survey or legal description d. meets assessment work requirements e. pays statutory price	BLM reviews application for procedural adequacy and for assertions showing existence of valid location and valuable discovery. Sends to Regional Forester if adequate.
Receives patent OR Defends claim in quasi-judicial contest procedure.	Reviews FS recommendations and report for technical and legal sufficiency. Issues patent OR Initiates and conducts contest action.

minerals on public domain)

USFS ROLE (FSM 153.12, 2819)	NOTES (FSM 1531.12, 2818, 2819)
	Right to mineral and use of surface and the surface resources for mining is not dependent upon a patent. (See Figure 2.7)
Regional Forester forwards notice of patent application to RO minerals staff for their evaluation as to mineral claim validity based on an on-site examination. FS has 60 days to recommend contest of application (from notification by BLM). Forest Supervisor writes recommendation to RO based on mineral report by mining engineer or geologist.	FS has investigatory, not adjudicatory authority in determining validity of the claim. DOI (through Administrative Law Judge and IBLA) determines validity of claim. Failure to meet 60-day limit (except for delays due to weather, etc.) allows BLM to make exam and proceed with patent action, though seldom done. OGC requested to determine whether legal requirements are met or if contest is necessary.
Regional Forester after Office of General Counsel review forwards opinion to BLM that: The claim is eligible for patent OR Recommendation that the claim be contested	The patent applicant has a right to patent if the requirements are met, and there is no basis for discretion on the part of the Government to deny it. Since there is no discretion, the NEPA process (EA or EIS) is not applicable.

Leasing Processes (FSM 2820)

Basic leasing processes are illustrated in figures 2.9 -- 2.11. There are minor differences to be noted, such as the shift in names of certain documents from one commodity to another (for example, "operating plan" vs. "mining plan"). These names vary from one part of the country to another, but generally the differences are not important. Whatever the title given the documents, the land manager must understand the intent of the specific document being processed. The same holds true for the various names given to steps in the procedure. In one place an Environmental Assessment is called an Operational EA and in another a Phase II EA. Some people prefer "exploration" vs. "prospecting."

To summarize the process, the operator initiates an application with the appropriate DOI agency. That agency sends notice to the Forest Service; the Forest Service sends back its opinion, and the Interior agency with jurisdiction makes a decision. This cycle is repeated throughout the various phases of an operation: exploration, leasing, development, plan modification, and actual mining operations. The more complicated an operation is, the more cycles take place.

Whether the Forest Service has consent or recommendation authority, and at what points, should be determined immediately. This way, the land manager gains a clear idea of how and when the Forest Service can influence the character and extent of the operation. For example, under a preference right leasing system, if the holder of a BLM prospecting permit meets certain requirement, a lease must be issued and the Interior Department has no discretion to reject the lease application. (See fig. 2.6, p. 53 for minerals affected.) As a result, Forest Service authority should be exercised at the prospecting-permit approval stage, since the Forest Service can only propose operating conditions at the lease-issuance point.

The Interior agencies generally uphold Forest Service recommendations (even though they are not bound to do so), as long as there are

Figure 2.9 COAL SURFACE
(Coal is

OPERATOR'S ROLE (FSM 2822)	BLM/GS/OSM ROLES (FSM 2822)
Exploration	
Operator goes to BLM for coal exploration license (FSM 2821.03-1) (or already has lease)	BLM sends copy of license application to Regional Forester
Operator submits exploration plan to GS (if actions are other than 'casual use' of land)	GS forwards copy of exploration plan to Forest Supervisor for consent.
	GS approves exploration plan
	Bonding procedures completed.
Operator must furnish evidence of bond in required amount	GS is supervisor in Area of Surface Use (ASU); performs routine inspections.
Exploration takes place, and operator performs appropriate reclamation in course of operations	GS notifies FS & BLM of completion
Operator submits notice of completion to GS	
	GS recommends release of bond, if appropriate; BLM releases bond.
Leasing	
Operator applies to BLM for lease.	BLM processes lease proposal and sends copy to FS and GS.
	GS evaluates area for minerals; recommends royalty, rental and size of bond to BLM.
	If EIS is necessary, it is prepared by lead agency or its contractor, as decided by negotiation. (FSM 1950)

MINING
a leasable mineral)

USFS ROLE (FSM 2822)	NOTES (FSM 2822)
Regional Forester receives copy of application for USFS consent (see procedure outlined below for "leasing consent" procedure, as it is the same) - EA by Forest Supervisor/DR - Stipulations to be attached to exploration license	
Forest Supervisor gives consent to exploration plan, provides stipulations (or denies consent until revised exploration plan is approved)	FS consults mineral staff and legal counsel
In practice, FS consulted on bonding amount	
Forest Supervisor/DR performs routine inspections; has authority to act within ASU only in emergencies; otherwise goes through GS	Use checklist of items to inspect; keep file of checklists
Forest Supervisor/DR inspects and approves abandonment if reclamation is satisfactory and consents to release of bond. If unsatisfactory, operator will be given chance to satisfactorily complete it, or bond will be forfeited and the funds used to defray costs of completing reclamation	If bond does not meet costs of reclamation, a suit may be filed by the United States to recover additional costs.
Regional Forester receives copy of lease proposal for USFS consent	FS stipulations must be adhered to and included in lease - this is one of the few points at which the FS can influence the character and extent of operations. Care must be taken to assure that an appropriate end land use is achieved through stipulations
Forest Service for affected area conducts Phase I (overview or issuance) Environmental Assessment (EA)	EA should be prepared using forest plan and ID team approach. Joint preparation of EA is possible. (FSM 1950)
Forest Supervisor/DR reports on: availability of FS land, stipulations, EA conclusions on whether EIS is needed to support FS land, stipulations, EA conclusions on whether EIS is needed to support FS action on leasing decision, and title report is prepared for acquired lands.	DR authority does not extend to operations in Wilderness, those that require an EIS, or those where bond exceeds $20,000.

(Coal is

OPERATOR'S ROLE (FSM 2822)	BLM/GS/OSM ROLES (FSM 2822)
	BLM leasing activity takes place
Operator contacts OSM/State about intention to enter leased lands	OSM/State notifies FS of proposed entry
Operator submits mining and reclamation plan (M & R plan) to OSM/State	OSM/State forwards copy of M & R plan to Regional Forester & GS
To qualify for permit, operator must also file with OSM a legal, financial and compliance report, and an environmental resources report	Approval of M & R plan by OSM/State and GS
Bonding requirements are met by operator	Bond set by BLM
Operator conducts mining; in course of mining, operator conducts reclamation procedures	GS has development, production and resource recovery role and performs routine inspections OSM/State has environmental aspects role and necessary enforcement role. OSM/State is in charge of ASU operations, and performs routine inspections
Operator files notice of abandonment with OSM/State and requests release of bond	OSM/State forwards copy of notice of abandonment to Regional Forester and to GS OSM/State, with GS and FS consent, recommends release of bond to BLM BLM releases bond
If lease is to be relinquished, notice is given to BLM	BLM terminates lease

a leasable mineral)

USFS ROLE (FSM 2822)	NOTES (FSM 2822)
Regional Forester forwards to BLM consent to leasing activity based on Forest Supervisor's report and advice from minerals staff and legal counsel, and includes FS stipulations (or denies consent, thereby prohibiting development) Forest Service notified of proposed entry -field review with operator & other agencies (optional) DR conducts Phase II (M & R plan) EA on plan, DR/Forest Supervisor provides consent to OSM/State along with FS stipulations on M & R plan (or denies consent until revised M & R plan is approved) Conference with operator and other agencies if needed In practice, FS is consulted on amount of bond	Aggrieved operator may appeal through administrative appeal procedures When a cooperative agreement is in effect for a State, a designated State agency acts for OSM. Memos of Understanding should be consulted when they are available for clarification of USFS-OSM-BLM relationships. EA preparation must rely on Forest plan and ID team approach; joint preparation of EA is possible. A lead agency will be selected to prepare an EIS in accordance with NEPA regulations.
DR/Forest Supervisor performs routine inspections, FS can act directly in emergency situations to protect surface, but routinely goes through GS when dealing with leasehold operations	Use a checklist of items to inspect; keep file of checklist M & R plan may be supplemented or modified as necessary
DR/Forest Supervisor inspects and approves abandonment and release of bond if reclamation is satisfactory. Regional Forester gives consent to OSM/State (or denies it, thereby requiring additional reclamation steps by operator; if operator does not satisfactorily complete reclamation, the bond may be forfeited and the funds used to defray costs of completing reclamation)	FS may not require reclamation activities not included in approved M & R plan If bond does not meet costs of reclamation, a suit may be filed by the United States to recover additional costs

Figure 2.10 OIL AND

(Oil and gas are

OPERATOR'S ROLE	BLM/GS ROLES (FSM 1531.14, 1531.41, 2822)
Exploration (FSM 2821)	
Operator may contact FS for prospecting permit (usually for geophysical operations) - an earlier permit does not exclude a later permit to another operator to explore the same area - FS prospecting permits are for the purpose of surface use only and give no interest in the mineral estate; they do not establish any preference right for a lease Exploration takes place, operator performs appropriate reclamation procedures during course of exploration. Operator files termination notice.	Usually a lease is obtained before prospecting occurs, but prospecting is often conducted prior to leasing under authority of USFS prospecting permit
Leasing (FSM 2822)	
Operator responds to BLM opening for leasing, or applies for non-competitive lease (competitive and non-competitive leasing makes the procedures between operator and BLM vary slightly; however, FS responsibilities remain the same)	BLM processes lease documents and sends copy to FS & GS GS evaluates area for minerals; writes recommendations to BLM on royalty, rental and size of bond If EIS is needed, it is prepared by the lead agency or their contractor, as decided by negotiation (FSM 1950)

leasable minerals)

USFS ROLE (FSM 1531.14, 1531.41, 2821, 2822)	NOTES (FSM 2821, 2822)
Informal site survey with Operator is desirable	
DR conducts EA and develops appropriate stipulations - Operator is notified of need for additional data, such as archaeological studies	
DR confers with operator; approves permit; Fees are collected and bond is arranged - forwarded to RO	No fees charged if operations on BLM oil and gas lease
DR holds optional prework conference with operator to assure full understanding of permit and reclamation terms	
DR conducts routine inspections of operations	Use checklist of items to inspect; file checklists
DR performs inspection and approves release of bond if reclamation is satisfactory. Operator will be given the chance to complete satisfactory reclamation or the bond will be forfeited and funds used to defray costs of completing reclamation	
Regional Forester receives copy of lease documents for USFS consent or recommendation	FS consent is required for leasing of oil and gas deposits with acquired status: - FS stipulations must be included in the lease
Regional Forester is responsible for Phase I EA, referring to Forest plan and using ID team approach - Joint preparation of EA is possible (FSM 1950)	FS can only give recommendations for leasing of public domain oil and gas: - BLM can choose to exclude recommended stips
Forest Supervisor/DR reports on: availability of FS land, required or recommended stipulations, EA conclusions on whether EIS is needed to support FS action, and title report is prepared for acquired lands	Note: FS can influence the character and extent of operations through the lease stipulations. Care must be taken to assure that an appropriate end land use is achieved through the stips. DR authority does not extend to operations in Wilderness, those that require an EIS, or those where bond exceeds $20,000

OPERATOR'S ROLE (FSM 2822)	BLM/GS ROLES (FSM 1531.14, 1531.41, 2822)
	BLM leasing activity takes place
Operator contacts GS as to intention to enter leased lands, submits preliminary map and explanation of proposed activity	GS notifies Forest Service
Operator develops plans, performs necessary studies, etc.	
Operator submits operating plan and application for permit to drill (APD); applies for permits for off-lease activity if necessary.	GS forwards operating plan/APD to Forest Service
	Lead agency preparation of EIS if needed
	Approval of operating plan by GS
Operator furnishes evidence of adequate bond	Bond is set by GS; BLM holds bond.
Operator conducts drilling, transport, operations as necessary and performs appropriate reclamation in course of operations in accordance with operating plan	GS is in charge of area of surface use (ASU) and performs routine inspections.
Notice of Abandonment filed with Department of the Interior agency by operator; release of bond is requested	Notice is given to Forest Service
(If well is a producer, operating plan is modified if necessary through similar procedures as outlined above; operator submits APD or sundry notices and reports on wells as appropriate to reflect course of operations)	GS recommends release of bond to BLM when reclamation is satisfactory
	BLM releases bond
If lease is to be relinquished, notice is given to BLM	BLM terminates lease

G A S

are leasables)

USFS ROLE (FSM 1531.14, 1531.41, 2822)	NOTES (FSM 1531.41)
Regional Forester gives consent or recommendation to BLM as to leasing activity based on Forest Supervisor's report and advice of minerals staff and legal counsel;	(see previous page for consent/recommendation criteria)
FS is notified of proposed entry on land - may ask for prestaking conference and preliminary environmental review	15 day response time. Automatic approval if no FS response and operator can stake and survey.
DR conducts Phase II (operating plan) EA on Plan/APD; DR/Forest Supervisor provides consent or recommendation to GS; conference with GS and operator as needed	EA should be prepared using forest plan and ID team approach (FSM 1950) - joint EA preparation possible - State and Federal environmental standards must be met in the operating plan - EIS, if necessary
Additional bonding may be required/recommended by FS	
DR/Forest Supervisor performs routine inspections, FS can act directly in emergency situations to protect surface, but routinely goes through GS when dealing with leasehold operations	Use checklist of items for inspection; keep files of checklists.
Forest Supervisor/DR performs inspection and concurs to bond release if reclamation is satisfactory. If reclamation is unsatisfactory, operator will be given the chance to satisfactorily complete it, or the bond will be forfeited and the funds used to defray costs of completing reclamation.	FS may not require reclamation activities not included in approved operating plan. If bond does not meet costs of reclamation, a suit may be filed by the United States to recover additional costs

Figure 2.11 HARDROCK ON

(Hardrock acquired

OPERATOR'S ROLE (FSM 2822)	BLM/GS ROLES (FSM 1531.14, 2822)
Exploration	
Operator contacts BLM for prospecting permit (Note that this is not a Forest Service prospecting permit)	BLM sends copy of permit application to Regional Forester for consent
Operator submits operating plan to GS	GS forwards copy of operating plan to Forest Supervisor for consent
Operator must furnish evidence of bond in required amount	Bonding procedures completed
Exploration takes place, and operator performs appropriate reclamation in course of operations	GS is supervisor in Area of Surface Use (ASU); performs routine inspections
Operator submits notice of completion, permit relinquished; OR claims discovery	GS notifies BLM & FS of completion and relinquishment of permit if no discovery. If discovery claimed and verified, see below for leasing
	GS recommends release of bond, if appropriate; BLM releases bond
Leasing	
Operator applies to BLM for lease (under preference consideration)	BLM processes lease application and sends copy to FS and GS
	GS evaluates area for minerals; recommends royalty, rental & size of bond to BLM
	If EIS necessary, it is prepared by lead agency or their contractor, as decided by negotiation (FSM 1950)

minerals are leasables)

USFS ROLE (FSM 1531.14, 2822)	NOTES (FSM 2822)
Regional Forester receives copy of application for USFS consent (see procedure outlined below for "leasing consent" procedure as it is the same) or denial of consent - EA by Forest Supervisor/DR - Stipulations to be attached to prospecting permit Forest Supervisor after advice from minerals staff and legal counsel gives consent to operating plan and provides stipulations (or denies consent until revised operating plan is approved) FS consulted on bond amount Forest Supervisor/DR performs routine inspections; has authority to act within ASU only in emergencies; otherwise goes through GS Forest Supervisor/DR inspects and approves abandonment if reclamation is satisfactory and consents to release of bond. If unsatisfactory, operator will be given chance to complete it, or bond will be used to defray costs of completion. If discovery is made and verified, see leasing procedures, below.	Use checklist of items to inspect; keep file of checklists If bond does not meet costs of reclamation, a suit may be filed by the United States to recover additional costs
Regional Forester receives copy of lease application for USFS consent Forest Supervisor for affected area conducts Phase I (overview or issuance) Environmental Assessment (EA) Forest Supervisor/DR reports on availability of FS land, stipulations, EA conclusions on whether EIS is needed to support FS action on leasing decision.	FS stipulations must be adhered to and included in the lease - this is one of the few points where FS can influence the character and extent of operations. Care must be taken to assure that an appropriate end land use is achieved through stipulations. EA should be prepared using forest plan and ID team approach. Joint preparation of EA is possible. (FSM 1950)

OPERATOR'S ROLE (FSM 2822)	BLM/GS ROLES (FSM 1531.14, 2822)
	BLM leasing activity takes place
Operator contacts GS as to intention to enter leased lands	GS notifies FS of proposed entry
Operator submits operating plan to GS	GS forwards operating plan to Forest Service
	Lead agency preparation of EIS if needed
	Approval of operating plan by GS
Operator furnishes evidence of adequate bond	Bond is set by BLM
Operator conducts mining operations as necessary and performs appropriate reclamation in course of operations in accordance with operating plan	GS is in charge of area of surface use (ASU) and performs routine inspections
Operator files notice of completion with Department of the Interior agency (ies); release of bond is requested	Notice is given to Forest Service
	Joint approval of bond release; BLM releases bond
If lease is relinquished, notice is given to BLM	BLM terminates lease

minerals are leasables)

USFS ROLE (FSM 1531.14, 2822)	NOTES (FSM 2822)
Regional Forester gives consent or recommendation to BLM on leasing activity based on report from FS and advice of minerals staff and legal counsel; supplies FS stipulations FS notified of proposed entry of leased lands DR conducts Phase II (operational) EA on operating plan; DR/Forest Supervisor provides consent -- or recommendation for changes; conference with operator and GS as needed. Additional bonding may be required by Forest Service	EA should be prepared using forest plan and ID team approach (FSM 1950) - joint EA preparation possible - State and Federal environmental standards must be met in the operating plan - EIS, if necessary
DR/Forest Supervisor performs routine inspections, FS can act directly in emergency situations to protect surface, but routinely goes through GS when dealing with leasehold operations	Use checklist of items for inspection; keep files of checklists.
Forest supervisor/DR performs inspection and approves bond release if reclamation is satisfactory. If reclamation is unsatisfactory, operator will be given the chance to satisfactorily complete it, or bond will be forfeited and funds used to defray costs of completing reclamation.	Forest Service may not require reclamation activities not included in approved operating plan. If bond does not meet costs of reclamation, a suit may be filed by the United States to recover additional costs

valid and documented reasons for them. Even with consent authority, of course, Forest Service decisions may be overturned if found to be arbitrary and capricious. A thorough EA or EIS, as well as a land-management plan, should help in this decision making and documentation process.

Common Varieties Process

Management and disposal decisions about common variety minerals on Forest Service lands rest entirely with the Forest Service. The sale or free use of these minerals is governed by the Secretary's Rules and Regulations. Appropriate environmental standards and National Environmental Policy Act of 1969 (NEPA) procedures must be observed to assure adequate protection of surface resources.

As shown in figure 2.12, the major difficulty in dealing with common varieties is deciding which minerals belong in this category. Once this determination is made by minerals staff and legal counsel, the method of disposal--free use or charge permit--may be decided. If a charge permit is used, it may be issued by either a competitive or non-competitive sale, depending on FS regulations.

As with other minerals development, appropriate stipulations, bonds, and operating procedures must be complied with, and inspections should be conducted to assure compliance. Since no other agencies are directly involved in common varieties disposal, the process is simpler than for locatable and leasable minerals. Questions will arise, however, such as what to do when two operators want to mine two different minerals materials from the same deposit. Again, the rule of thumb is: When a question arises, consult the appropriate authority before making a decision.

DRAFT 1979
To be Revised

Figure 2.12 COMMON
(Common varieties

OPERATOR'S ROLE (FSM)	OTHER AGENCIES
Applies to Forest Service for Prospecting Permit to find a deposit of common variety mineral materials	FS has sole authority and discretion about disposal of common variety mineral materials located on FS lands
Submits complete operating plan and reclamation plan in conjunction with permit application when requesting Permit for mining known mineral materials	
Bid submitted	
Fees paid; bond secured	
Mining takes place; reclamation proceeds Periodic payments, as required by permit	
Notice of termination of operations	

USFS ROLE (FSM)	NOTES
Informal site survey with Applicant D.R writes an EA, with reference to Forest plan; if decision is made to grant permits, stipulations defining reclamation requirements are attached. FS appraisal of materials (not necessary for Free Permits (see FSM) [new material on appraised values, competitive and non-competitive sales, etc. to comply with 30 USC 602] Performance bond secured, if surface reclamation is required Funds sent to RO Inspections take place Final inspection; return of bond if appropriate	For definition of "common variety" see FSM and consult RO minerals staff Common variety materials cannot be sold off unpatented mining claims without obtaining waiver from claimant No bid accepted for less than appraised value (FS can reject any and all bids) Sales can be by area or amount, but the unit price is always stated and the method of payment set forth There is a limit on amount sold to any one party in any one area in a certain period of time for noncompetitive sales Forest Supervisor may delegate authority to D.R. when value is less than Other Federal agencies and State and local government permitees must file operating and reclamation plans, but do not submit bonds. Bonds may be required of Free Permittees.

204 - SUMMARY

The minerals-management job is subject to constant change. New legislation is passed, Courts hand down new decisions, new agencies are created, new types of minerals deposits are discovered, and new technology improves mining procedures and reclamation practices.

Coping with these changes, and recognizing how and when they affect the Forest Service land-management job, can be much easier when the basic processes are understood. This handbook attempts to acquaint the land manager with the processes that occur when mineral activities take place on or near National Forest System lands. It is not an attempt to treat all the details or legalities involved in minerals development. It does attempt to show where the important questions arise, and when confering with minerals specialists and legal counsel is desirable.

The basic themes of the Handbook which were summarized in the Preface are all supported when the Forest Service land manager helps all parties concerned to communicate regularly. Frequent conversations with operators, the specialists from the various disciplines and legal counsel will be more than worth the time and effort spent. Developing good communications with the public is equally important. An effective land manager cultivates relationships that keep essential information flowing, encourages a willingness to make appropriate compromises, and prevents duplications of efforts. The management of minerals developments presents unique challenges because it relies on such a broad spectrum of specialists, involves so many agencies and types of jurisdictions, needs such long range planning, and is governed by such complex laws. With the planning and surface protection tools now available, the land manager can meet these challenges with productive multiple land uses and effective surface resource protection.